PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-277257

(43)Date of publication of application : 06.10.2000

(51)Int.Cl. H05B 33/12
G09F 9/30
H05B 33/14

(21)Application number : 11-078319

(22)Date of filing : 23.03.1999

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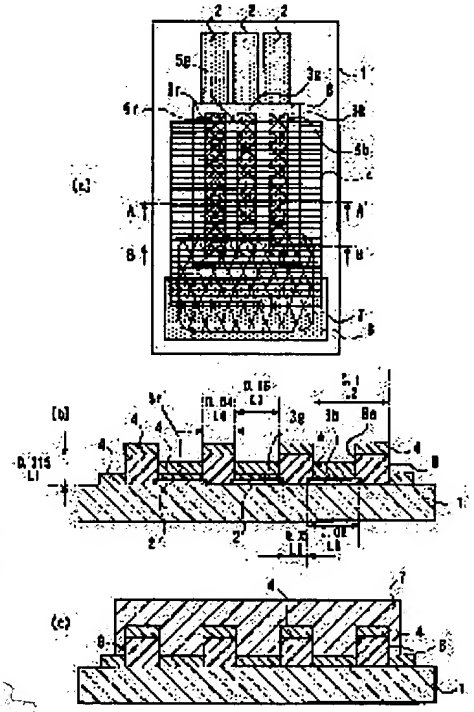
(54) ORGANIC ELECTROLUMINESCENT DEVICE AND ORGANIC ELECTROLUMINESCENT DISPLAY DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an organic electroluminescent device to be satisfactorily used as the backlight of a color liquid crystal display device.

SOLUTION: An organic electroluminescent device is furnished on a transparent board 1 with organic electroluminescent regions 5r, 5g, 5b in a stripe form. One set of the electroluminescent regions 5r, 5g, 5b is formed to emit light red, green, and blue, and a number of such sets are arranged. Thereby the emitted colors of the regions 5r, 5g, 5b are mixed to generate white light emission. Therein lowering in the light emitting efficiency can be avoided by introducing a structure in which light emitting materials for organic EL elements emitting different colors exist mixedly in a single element. Accordingly, the resultant organic electroluminescent device becomes thinner than backlight using a conventional fluorescent tube and has high light emitting efficiency.



LEGAL STATUS

[Date of request for examination] 28.11.2005

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

[Claim(s)]
[Claim 1] Organic electroluminescence luminescence equipment characterized by emitting light in the shape of a field with the luminescent color which has arranged two or more sorts of organic electroluminescence luminescence fields which emit light in a color different, respectively in the shape of a stripe on a transparence substrate, and mixed the different luminescent color.
[Claim 2] Organic electroluminescence luminescence equipment which arranges three sorts of organic electroluminescence luminescence fields which emit light in red, green, and blue, respectively in the shape of a stripe on a transparence substrate, and is characterized by carrying out color mixture of the different luminescent color, and emitting light in the shape of a white field in organic electroluminescence luminescence equipment according to claim 1.
[Claim 3] Organic-electroluminescence luminescence equipment characterized by to emit light in the shape of a white field by carrying out color mixture of the light of a different color in which one [at least] luminescence wavelength field is large, and arranges two sorts of organic electroluminescence luminescence fields which emit light in a color different, respectively in the shape of a stripe on a transparence substrate, and emits light from two sorts of organic electroluminescence luminescence fields in organic electroluminescence luminescence equipment according to claim 1, respectively.
[Claim 4] In the organic electroluminescence luminescence equipment of any one publication of three from claim 1 So that the current and electrical potential difference which emits light in every organic electroluminescence luminescence field and the same color and which is impressed for every organic electroluminescence luminescence field may be adjusted and brightness can be adjusted Organic electroluminescence luminescence equipment characterized by making into the independent structure either [at least] the cathode electrode which impresses an electrical potential difference to this organic electroluminescence luminescence field, or an anode electrode for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color.
[Claim 5] Organic electroluminescence luminescence equipment characterized by considering as the common electrode to which the cathode electrode of each organic electroluminescence luminescence field was connected mutually while making the above-mentioned anode electrode into the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color in organic electroluminescence luminescence equipment according to claim 4.
[Claim 6] Organic electroluminescence luminescence equipment characterized by considering as the common electrode to which the anode electrode of each organic electroluminescence luminescence field was connected mutually while making the above-mentioned cathode electrode into the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color in organic electroluminescence luminescence equipment according to claim 4.
[Claim 7] Organic electroluminescence luminescence equipment characterized by adjusting the

luminescent color by adjusting the area of the organic electroluminescence luminescence field which emits light in each color in the organic electroluminescence luminescence equipment of any one publication of six from claim 1.

[Claim 8] Three sorts of organic electroluminescence luminescence fields which emit light in red, green, and blue, respectively are arranged in the shape of a stripe on a transparence substrate. And one electrode of the cathode electrode which makes an electrical potential difference and a charge impress to the above-mentioned organic electroluminescence luminescence field, and the anode electrodes The organic electroluminescence display characterized by having met in the die-length direction of each organic electroluminescence luminescence field, having arranged in the shape of a stripe so that it may lap with each organic electroluminescence luminescence field, and having arranged the electrode of another side in the shape of a stripe so that each organic electroluminescence luminescence field may be intersected.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to organic electroluminescence luminescence equipment suitable as a back light of non-spontaneous light indicating equipments, such as a liquid crystal display (LCD), and an organic electroluminescence indicating equipment especially with respect to the organic electroluminescence luminescence equipment which performs field-like luminescence using an organic EL device.
[0002]
[Description of the Prior Art] Conventionally, what combined fluorescence tubing and a light guide plate as a source of the flat-surface white light of the back light for LCD, flat-surface fluorescence tubing, etc. are used. When obtaining white luminescence, compared with solid-state light emitting devices, such as EL light emitting device, the fluorescence tubing using luminescence from a gaseous phase is more advantageous, and fluorescence tubing is used for much LCD. However, with the combination of the fluorescence tubing and the light guide plate (or reflecting plate) which are used as a common back light, and flat-surface fluorescence tubing, the further thin-shape-izing was difficult. That is, while a limitation is to make fluorescence tubing thin (thinly), when obtaining the most uniform possible field-like luminescence, there is a limitation also in thin shape-ization of a light guide plate.
[0003] Then, in some small liquid crystal displays (LCD), there are some which use the EL element (electroluminescent element) as a back light, and thin shape-ization of LCD which has a back light can be attained by using a thin EL element as a field-like illuminant for back lights. Moreover, since a back plate functions as a reflector, an EL element can usually use LCD in both a reflective mold and a transparency mold, for example. However, the back light using the EL element currently produced commercially in the present condition was what has colors, such as green, rather than was white.
[0004] From these things, the white light emitting device using the EL element as a back light for LCD is examined. Moreover, as an EL element, although the inorganic EL element and the organic EL device are known, in luminous efficiency, the direction of an organic EL device is excellent, and development of the field-like emitter which emits light in the white light with an organic EL device is performed. Moreover, when an electrical potential difference is impressed, a current flows, and an organic electroluminescence light emitting device is driven by the direct current. In addition, an organic EL device carries out the laminating of the transparent electrode (anode plate) which consists of an indium-stannic-acid ghost (ITO) for example, on a glass substrate, the organic electroluminescence luminous layer which consists of a hole transportation layer, a luminous layer, an electronic transportation layer, etc., and the back plate (cathode) which consists of a metal of a low work function.
[0005] And the hole poured in from the transparent electrode and the electron poured in from the back plate recombine luminescence of an organic EL device by the organic electroluminescence luminous layer, and it takes place by exciting the fluorochrome which is an emission center. In addition, there is a thing of the two-layer structure other than the 3 above layer structures in an organic electroluminescence luminous layer. Moreover, an organic electroluminescence light emitting device can manufacture a

spontaneous light indicating equipment using an organic electroluminescence light emitting device it is not only used as a back light of non-spontaneous light indicating equipments, such as LCD, but, and development of the indicating equipment using an organic electroluminescence light emitting device is also performed.

[0006]

[Problem(s) to be Solved by the Invention] By the way, although the luminescent color of an organic EL device is fundamentally decided by classes, such as luminescent material, for example, an above-mentioned fluorochrome etc., the luminescent material of the single kind which emits light in white in the present condition was not known, but in order to obtain white luminescence in an organic EL device, it has obtained white luminescence by making two or more luminescent material intermingled. That is, it is in forming the luminous layer of one layer in the condition of, for example, having mixed each luminescent material which emits light in red, green, blue (RGB), etc. **** (). After introducing each dopant of RGB into a luminous layer or vapor-depositing two or more luminous layers, respectively, patterning is carried out separately, respectively and it divides superficially. Or emit light to coincidence or When forming a luminous layer, white luminescence had been obtained because the laminating of the layer containing each luminescent material which emits light in red, green, blue, etc. is made to be carried out.

[0007] However, in the organic EL device of the structure which carries out the laminating of the layer containing the organic EL device which two or more luminescent material was made intermingled in this way, and was formed, or two or more luminescent material, the nonluminescent transition in an organic electroluminescence layer increases, and the efficient component is not obtained in the present condition. That is, as compared with the usual organic EL device which contains one kind of luminescent material, without making two or more luminescent material intermingled, in the same power consumption, brightness is low and the organic EL device which emits light in the above whites was that of a potato. Therefore, the organic EL device which carries out white luminescence is in a condition with difficult utilization by lack of brightness and the reasons of high power consumption etc. Moreover, in the organic EL device divided superficially, the number of luminous layer patterning processes needed to increase, in order to form in fine white moreover, color mixture of two or more colors fully had to be carried out, and the pitch of the field which makes small area of the field of each of the luminous layers of each color for this reason, and adjoins needed to be made small. However, when photolithography performed such patterning, the luminous layer itself might deteriorate and it might have the bad influence on the electrode. Moreover, even if vapor-deposited using the metal mask, it was not able to form in a high definition pitch. It was difficult to, develop a low cost spontaneous light display with the easiest possible configuration on the other hand, although what various attempts are made in development of the spontaneous light display using an organic EL device, and was colorized using the color filter, the thing which expresses a color using the organic EL device of a class with which two or more colors differ are developed.

[0008] While aiming at offering the organic electroluminescence luminescence equipment which this invention can be made in view of the above-mentioned situation, and can use it as a precise field-like emitter which carries out white luminescence, and can realize high brightness with a low power, it aims at offering the organic electroluminescence luminescence equipment in which color display is possible, and an organic electroluminescence display with the easiest possible configuration.

[0009]

[Means for Solving the Problem] The organic electroluminescence luminescence equipment of this invention according to claim 1 is characterized by emitting light in the shape of a field with the luminescent color which has arranged two or more sorts of organic electroluminescence luminescence fields which emit light in a color different, respectively in the shape of a stripe on a transparence substrate, and mixed the different luminescent color.

[0010] Since two or more sorts of organic electroluminescence luminescence fields which emit light in a different color are arranged in the shape of a stripe on a transparence substrate according to the above-mentioned configuration, each organic electroluminescence luminescence field serves as a line (band-

like) mostly. And when each organic electroluminescence luminescence field emits light, each organic electroluminescence luminescence field serves as a linear light source mostly, and it will lap with luminescence which spreads from other organic electroluminescence luminescence fields where light had been arranged band-like at breadth and has been arranged in the shape of a stripe in near as it separates from each organic electroluminescence luminescence field. And when it is the color from which the light which lapped in this way differs, light will be emitted by the color with which the light of a different color was mixed. Therefore, when two or more sorts of organic electroluminescence luminescence fields where the luminescent color differs have been arranged in the shape of a stripe on a transparence substrate as mentioned above, it can check by looking as a condition which emitted light in the shape of a field by the color with which two or more sorts of luminescent color was mixed in the location distant to some extent from the part by which the organic electroluminescence luminescence field has been arranged in the shape of a stripe. In addition, in order to obtain luminescence of almost uniform color mixture, the organic electroluminescence luminescence field which emits light in a different color to the distance (distance to the display illuminated when using it as a back light) which the distance between each stripe (each organic electroluminescence luminescence field) checks by looking while it is fully narrow needs to be distributing mutually.

[0011] and luminescence of the color to which color mixture of the luminescent color of the organic electroluminescence luminescence field of each color was carried out in this way in the organic electroluminescence luminescence field which emits light in each color as compared with the thing which there is no need of using two or more luminescent material, and contains one kind of luminescent material (fluorochrome), then the case where two or more conventional luminescent material is made intermingled, respectively since it was good -- a low power -- high -- it can consider as a brightness thing. Therefore, if the color and brightness of each organic electroluminescence luminescence field are decided that color mixture becomes white, the back light which performs field-like luminescence of the white of the high brightness in a low power can be manufactured. moreover, the color of the arbitration which mixed two or more colors even if it was except white -- emitting light -- and a low power -- high -- a brightness field-like emitter can be obtained. Moreover, as compared with other configurations which obtain color mixture from two or more organic electroluminescence luminescence fields, the manufacture can be easily performed by arranging the organic electroluminescence luminescence field which emits light in each color in the shape of a stripe (for example, when two or more sorts of organic electroluminescence luminescence fields where the luminescent color differs are arranged in the shape of a mosaic, or it is made to distribute finely as the shape of a small field and each organic electroluminescence luminescence field has been arranged etc.).

[0012] Moreover, by changing every organic electroluminescence luminescence field and the power applied for every organic electroluminescence luminescence field of each luminescent color Although it is necessary to consider as the configuration which can impress an electrical potential difference independently for every organic electroluminescence luminescence field and every organic electroluminescence luminescence field of each luminescent color when considering as a configuration which adjusts the color of luminescence by which changed brightness and color mixture was carried out for every luminescent color It compares, when each organic electroluminescence luminescence field is arranged in the shape of a mosaic by arranging each organic electroluminescence luminescence field in the shape of a stripe, or it distributes finely and each organic electroluminescence luminescence field has been arranged. It can consider as the configuration which makes the minimum the outgoing line for supplying power to each organic electroluminescence luminescence field etc., and can impress an electrical potential difference independently for every organic electroluminescence luminescence field very easily. Moreover, when the power applied for every organic electroluminescence luminescence field or organic electroluminescence luminescence field of each luminescent color is changed, three kinds which can emit light in various colors, for example, double the class of organic electroluminescence luminescence field with the three primary colors of a color, and emit light in each color of red, green, and blue with one organic electroluminescence luminescence equipment, then almost full color luminescence can be performed.

[0013] Moreover, since the back plate which an organic EL device is formed as mentioned above on transparence substrates, such as a glass substrate and a bright film substrate (transparence resin substrate), is more specifically opaque in an organic EL device, and has metallic luster functions as a reflecting plate, luminescence from an organic electroluminescence layer will penetrate a transparent electrode and a transparence substrate, and will be emitted to the front-face (field where field in which organic EL device was formed is opposite) side of a transparence substrate. Therefore, the light from the organic electroluminescence luminescence field of each color formed in the shape of a stripe on the transparence substrate will be in the condition that the light of the luminescent color by which carried out color mixture within the transparence substrate fundamentally, and color mixture was carried out to the front-face side of a transparence substrate was emitted in the shape of a field. in addition -- for carrying out color mixture within a transparence substrate -- the thickness of a transparence substrate, and spacing (the width of face of each organic electroluminescence luminescence field --) of each organic electroluminescence luminescence fields It is necessary to adjust spacing between each organic electroluminescence luminescence fields etc. in consideration of the refractive index of a transparence substrate etc., and if the thickness of a transparence substrate is thin When it is necessary to narrow spacing of each organic electroluminescence luminescence fields and the thin shape of organic electroluminescence luminescence equipment is planned, it is desirable to make a stripe-like organic electroluminescence luminescence field thin.

[0014] Moreover, each organic electroluminescence luminescence field is formed in the shape of a stripe on a transparence substrate as mentioned above, and the above organic electroluminescence luminous layers are formed together with between a cathode and anodes mutual almost in parallel with band-like (when spacing of organic electroluminescence luminescence fields is narrow, it is a line mostly) on a transparence substrate. Moreover, if the electrical potential difference and current impressed for every organic electroluminescence luminescence field in this case are not changed, a cathode and an anode shall be formed in the whole surface of the part into which a transparence substrate emits light in the shape of a field. Moreover, if either [at least] a cathode or an anode is formed in the condition of having become independent in the shape of a stripe, along each organic electroluminescence luminescence field so that it may lap with each organic electroluminescence luminescence field, it can consider as the configuration which can change the electrical potential difference and current impressed for every organic electroluminescence luminescence field.

[0015] Moreover, it is usable also as a back light of field sequential full color LCD which needs to change the brightness of each organic electroluminescence luminescence field while using [such a configuration, then] organic electroluminescence luminescence equipment, can change the luminescent color, for example, needs to change the color of a back light for every field of each color (RGB). In this case, that electrostatic capacity of an organic EL device is very small, and it can be switched at high speed, and since it can change luminescence of each color of RGB to a high speed, in order to raise effectiveness, it serves as the optimal, very thin back light for field sequential full color LCD as compared with fluorescence tubing which used the fluorescence material which has afterglow nature.

[0016] Moreover, although the above-mentioned organic electroluminescence luminescence field is an organic EL device fundamentally, it is not necessary to have a cathode and an anode according to an individual for every organic electroluminescence luminescence field as mentioned above, and the organic electroluminescence luminous layer arranged between a cathode and an anode at least should just be arranged in the shape of a stripe. Therefore, an organic electroluminescence luminescence field consists of a part corresponding to a stripe-like organic electroluminescence luminous layer and the organic electroluminescence luminous layer of the shape of a stripe of a cathode and an anode.

[0017] Moreover, although the organic electroluminescence luminescence field of the various kinds which emit light in a different color in the above-mentioned organic electroluminescence luminescence field contains a well-known luminescent material, respectively and has the luminescent color based on this luminescent material, as for each organic electroluminescence luminescence field, it is desirable that one kind of luminescent material for obtaining the luminescent color of each organic electroluminescence luminescence field is included, and it is desirable that the luminescent material

from which a class differs in one organic electroluminescence luminescence field more than high impurity concentration is not contained. That is, it is made for one kind of luminescent material which is different for every organic electroluminescence luminescence field of various kinds, respectively to be included, and it is necessary to make it not be in the condition that as two or more luminescent material as possible was intermingled to one organic electroluminescence luminescence field, when attaining a low power and high brightness, since the fall of brightness and the rise of power consumption will be caused like before when two or more luminescent material is made intermingled.

[0018] Moreover, it is desirable that it faces to arrange the organic electroluminescence luminescence field of various kinds in the shape of a stripe, and the color in each location of the luminescence side of organic electroluminescence luminescence equipment will be in the condition of having carried out color mixture to the almost same color, and it is desirable that it is in the condition that distribution of the organic electroluminescence luminescence field in every kind of two or more sorts of organic electroluminescence luminescence fields is almost the same. That is, as for the same organic electroluminescence luminescence field of a class, being arranged at almost fixed spacing is desirable, and it is desirable that many organic electroluminescence luminescence fields of a lot including every one organic electroluminescence luminescence field of various kinds are arranged in the shape of a group stripe.

[0019] The organic electroluminescence luminescence equipment of this invention according to claim 2 is characterized by arranging three sorts of organic electroluminescence luminescence fields which emit light in red, green, and blue, respectively in the shape of a stripe on a transparence substrate, carrying out color mixture of the different luminescent color, and emitting light in the shape of a white field in organic electroluminescence luminescence equipment according to claim 1.

[0020] Since according to the above-mentioned configuration the class of organic electroluminescence luminescence field was made into three kinds and these luminescent color was made into the red who is the three primary colors of light, green, and blue in the configuration of the claim 1 above-mentioned publication It enables it to perform field-like luminescence of the white which carried out color mixture of red, green, and the blue by adjusting the brightness of the organic electroluminescence luminescence field of various kinds. Luminescence of the high brightness in a low power can be performed like a configuration according to claim 1, and it can use suitably as a back light of nonluminescent indicating equipments, such as LCD, especially a color, or a full color nonluminescent indicating equipment. In addition, also in organic electroluminescence luminescence equipment according to claim 2, it becomes it is good also as what changes the power applied for every organic electroluminescence luminescence field and every organic electroluminescence luminescence field of each luminescent color, for example, and can change the luminescent color, and possible to perform such a configuration, then adjustment of a whiteness degree. Moreover, it can use suitably as a back light of field sequential full color LCD as mentioned above. In addition, in full color LCD except field sequential, since a color filter is generally used, it is desirable to adjust the brightness of the organic electroluminescence luminescence field of each color corresponding to the amount of transparency of the light of the color filter of each color.

[0021] In organic electroluminescence luminescence equipment according to claim 1, one [at least] luminescence wavelength field of the organic electroluminescence luminescence equipment of this invention according to claim 3 is large, and it is characterized by to emit light in the shape of a white field by carrying out color mixture of the light of a different color which arranges two sorts of organic electroluminescence luminescence fields which emit light in a color different, respectively in the shape of a stripe on a transparence substrate, and emits light from two sorts of organic electroluminescence luminescence fields, respectively.

[0022] According to the above-mentioned configuration, the class of organic electroluminescence luminescence field can be reduced as compared with the configuration of the claim 2 above-mentioned publication, and light can be emitted in the shape of a white field with a easier configuration. In addition, although an organic EL device will emit light in a specific color by the luminescent material contained, the wavelength of the light of luminescence in this case has a certain amount of wavelength width of face. And in a well-known luminescent material, when it uses for an organic EL device, that to

which the wavelength width of face of luminescence emits light in orange over the wavelength near green from the wavelength near red, the thing to which the wavelength width of face of luminescence emits light in bluish green over the wavelength near blue from the wavelength near green are known. When the organic electroluminescence luminescence field which emits light in such orange, and the organic electroluminescence luminescence field which emits light in bluish green have been arranged by turns for example, in the shape of a stripe, it is possible by adjusting the brightness of each organic electroluminescence luminescence field to carry out color mixture of the bluish green to orange, and to obtain white luminescence. That is, there is what has the large wavelength width of face of luminescence in an organic electroluminescence light emitting device, and it is possible to perform luminescence which occupies many of wavelength fields of the light, i.e., luminescence which can be mostly checked by looking in white, only by combining these [two], and it is not necessary to necessarily arrange three kinds of organic electroluminescence luminescence fields which shine to red, green, and blue three primary colors, respectively.

[0023] In addition, the luminescent color of two sorts of each organic electroluminescence luminescence fields should just be a color which can perform luminescence which can be mostly recognized to be white with the combination of two sorts of luminescent color. Therefore, the wavelength width of face of luminescence of one organic electroluminescence luminescence field is comparatively wide, and it is good, if white can be expressed when the wavelength width of face of luminescence of the organic electroluminescence luminescence field of another side carries out color mixture also in the combination which became comparatively narrow. Moreover, when using this organic electroluminescence luminescence equipment for the electrochromatic display which has a color filter as a back light, it is desirable that permeability contains somewhat many light of high wavelength in luminescence which carried out color mixture of the luminescent color of two sorts of organic electroluminescence luminescence fields with the color filter of each color.

[0024] The organic electroluminescence luminescence equipment of this invention according to claim 4 In the organic electroluminescence luminescence equipment of any one publication of three from claim 1 So that the current and electrical potential difference which emits light in every organic electroluminescence luminescence field and the same color and which is impressed for every organic electroluminescence luminescence field may be adjusted and brightness can be adjusted It is characterized by making into the independent structure either [at least] the cathode electrode which impresses an electrical potential difference to this organic electroluminescence luminescence field, or an anode electrode for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color.

[0025] When according to the above-mentioned configuration emitting light in white like a configuration according to claim 2 or 3 so that it may be used as a back light of a non-spontaneous light indicating equipment, a color can be adjusted so that it may become luminescence of the suitable color for a non-spontaneous light indicating equipment. Moreover, when using for the electrochromatic display which has a color filter as a back light, the brightness of luminescence which penetrates the color filter of each color can be adjusted, and the color balance of color display can be adjusted. Moreover, in organic electroluminescence luminescence equipment, in performing luminescence of those other than white, it becomes possible to adjust the brightness of the organic electroluminescence luminescence field of each color, and to emit light in the color of arbitration. Moreover, it can use as a back light of LCD which displays a field sequential method by carrying out sequential turning on and off of the organic electroluminescence luminescence field of the various kinds which emit light in red, green, and blue as mentioned above.

[0026] In organic electroluminescence luminescence equipment according to claim 4, the organic electroluminescence luminescence equipment of this invention according to claim 5 is characterized by considering as the common electrode to which the cathode electrode of each organic electroluminescence luminescence field was connected mutually while it makes the above-mentioned anode electrode the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the

same color.
[0027] Since the anode electrode is made into the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color according to the above-mentioned configuration, it becomes possible turning on and off of a current, and to change the electrical potential difference and current to impress for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color, and the same operation effectiveness as a configuration according to claim 4 can be acquired.
[0028] In organic electroluminescence luminescence equipment according to claim 4, the organic electroluminescence luminescence equipment of this invention according to claim 6 is characterized by considering as the common electrode to which the anode electrode of each organic electroluminescence luminescence field was connected mutually while it makes the above-mentioned cathode electrode the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color.
[0029] Since the cathode electrode is made into the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color according to the above-mentioned configuration, it becomes possible turning on and off of a current, and to change the electrical potential difference and current to impress for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color, and the same operation effectiveness as a configuration according to claim 4 can be acquired.
[0030] The organic electroluminescence luminescence equipment of this invention according to claim 7 is characterized by adjusting the luminescent color by adjusting the area of the organic electroluminescence luminescence field which emits light in each color in the organic electroluminescence luminescence equipment of any one publication of six from claim 1.
[0031] Even if it does not adjust the electrical potential difference and current impressed to each organic electroluminescence luminescence field by adjusting the area of the organic electroluminescence luminescence field which emits light in each color according to the above-mentioned configuration, adjustment of the luminescent color is possible. That is, in the phase of manufacture of organic electroluminescence luminescence equipment, the luminescent color by which color mixture was carried out can be decided by deciding the area of each organic electroluminescence luminescence field which emits light in each color corresponding to each brightness. Therefore, even if it does not have the composition that the electrical potential difference and current to impress are changed, for every organic electroluminescence luminescence field which emits light in the same color, and every organic electroluminescence luminescence field (as what is driven with an anode and a cathode for example, with each common organic electroluminescence luminescence field), in a manufacture phase, the luminescent color can be decided easily. In addition, even if it has the above composition, it is good also as possible in adjustment of a color after manufacture as a configuration which changes the electrical potential difference and current to impress for every organic electroluminescence luminescence field which emits light in the still more nearly same color, and every organic electroluminescence luminescence field.
[0032] The organic electroluminescence display of this invention according to claim 8 Three sorts of organic electroluminescence luminescence fields which emit light in red, green, and blue, respectively are arranged in the shape of a stripe on a transparence substrate. And one electrode of the cathode electrode which makes a charge impress to the above-mentioned organic electroluminescence luminescence field, and the anode electrodes It is characterized by having met in the die-length direction of each organic electroluminescence luminescence field, having arranged in the shape of a stripe so that it may lap with each organic electroluminescence luminescence field, and having arranged the electrode of another side in the shape of a stripe so that each organic electroluminescence luminescence field may be intersected.
[0033] Since according to the above-mentioned configuration it is arranged so that a stripe-like anode

and a stripe-like cathode may cross mutually, a dot-matrix display is attained by using one side as a signal electrode and driving another side as a scan electrode. Moreover, each organic electroluminescence luminescence field arranged in the shape of a stripe shall be arranged so that RGB may repeat three colors at a time. If the electrode arranged by lapping is used as a signal electrode so that each organic electroluminescence luminescence field may be met, and the electrode which intersects perpendicularly with this signal electrode and is arranged in the shape of a stripe is used as a scan electrode It becomes possible to perform color display, using as 1 pixel a part for the intersection of one scan electrode and three organic electroluminescence luminescence fields which emit light in each color of RGB and which adjoined each other mutually.

[0034] or [and / meeting subsequently to this ITO by forming ITO in the shape of a stripe on a transparence substrate, in case the organic electroluminescence display in which such color display is possible is manufactured] -- or an organic electroluminescence luminescence field is formed in the shape of a stripe so that it may intersect perpendicularly, a configuration is [that what is necessary is just to form a stripe-like back plate] simple so that stripe-like ITO may be intersected, and it can manufacture easily by low cost.

[0035]

[Embodiment of the Invention] Below, the organic electroluminescence luminescence equipment of the first example of the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 (A), drawing 1 (B), and drawing 1 (C) illustrate the minimum component of organic electroluminescence luminescence equipment, in order to explain the fundamental concept of the organic electroluminescence luminescence equipment of the first example. In addition, drawing 1 (B) is the A-A' line sectional view of drawing 1 (A), and drawing 1 (C) is the B-B' line sectional view of drawing 1 (A).

[0036] As shown in drawing 1 (A), (B), and (C), the organic electroluminescence luminescence equipment of the first example On the transparence substrate 1 (for example, glass substrate), the cathode terminal 6 which estranges electrically with anode 2 -- and anode 2-- which consist stripe-like (almost parallel that it is beltlike and mutually) of three ITO(s) (transparent electrode), and becomes with the same ingredient as anode 2 -- is formed. The transparence substrate 1 top and anode 2 -- Upwards, the septum resist 8 which the center of an anode 2 becomes from the insulating material equipped with opening 8a by which opening is carried out is formed. Anode 2 exposed by opening 8a in alignment with this anode 2 -- -- The stripe-like organic electroluminescence luminescence fields 5r, 5g, and 5b were formed upwards, and one cathode 4 which is the back plate which has the well-known ingredient of a low work function has accumulated on the transparence substrate 1 of a periphery on the upper septum resist 8 of them at the list according to each level difference. And one organic electroluminescence luminescence field (5r, 5g, 5b) which functions as one organic EL device from the part which laps with one organic electroluminescence luminous layer (3r, 3g, 3b) which laps with one anode 2 and this anode 2, and the one above-mentioned organic electroluminescence luminous layer in a cathode 4 (3r, 3g, 3b) is formed. Thereby, three organic electroluminescence luminescence fields 5r, 5g, and 5b are formed in the organic electroluminescence luminescence equipment shown in drawing 1 (A) in the shape of a stripe. In addition, in drawing 1 (A), the organic electroluminescence luminous layers 3r, 3g, and 3b, the cathode 4, and the conductive paste layer 7 mentioned later are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid.

[0037] Above-mentioned anode 2 -- is the anode 2 with which the edge of one of these is formed in the condition of having extended further previously, and has not lapped with the organic electroluminescence luminous layers 3r, 3g, and 3b from one edge side of the organic electroluminescence luminous layers 3r, 3g, and 3b. -- One edge is anode terminal 2a-- of each organic electroluminescence luminescence fields 5r, 5g, and 5b. The above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b consist of three layers, the electron hole transportation layer from an anode side, a luminous layer, and an electronic transportation layer, as mentioned above, for example.

[0038] In addition, in the first example, in forming the organic electroluminescence luminous layers 3r, 3g, and 3b, where patterning is carried out by vacuum evaporationo, the organic electroluminescence luminous layers 3r, 3g, and 3b shall not be formed, but the organic electroluminescence luminous layers 3r, 3g, and 3b shall be formed by wet spreading. And as a luminescent material used for the organic electroluminescence luminous layers 3r and 3g and the luminous layer in 3b, there are a low-molecular system and a macromolecule system, and when forming the organic electroluminescence luminous layers 3r, 3g, and 3b by wet spreading, a macromolecule system ingredient will be used as an ingredient of a luminous layer, for example.
[0039] And as the above-mentioned giant-molecule system ingredient, the poly carbazole, poly para-phenylene, the poly arylene vinylene, the poly thiophene, the poly fluorene, polysilane, polyacethylene, the poly aniline, the poly pyridine, the poly pyridine vinylene, and polypyrrole are mentioned. Moreover, as polymeric materials, the polymer of the monomer which forms the above-mentioned polymeric materials (polymer), the polymer and copolymer of oligomer, a monomer, or the induction object of oligomer and a copolymer, and the polymer and copolymer that carried out the polymerization of the monomer which has oxazole (oxane diazole, triazole, diazole) or a triphenylamine frame can be mentioned. Moreover, as a monomer of these polymers, an above-mentioned compound is formed by giving heat, **, UV, an electron ray, etc., and a ** monomer and a precursor polymer are included. Moreover, the non-conjugated-system unit which combines between these monomers may be introduced.
[0040] As concrete goods of polymeric materials, PORIPI nil carbazole:Tokyo Chemicals, PORITODE sill thiophene : Rieke, polyethylene dioxythiophene, PSS (polystyrene sulfonic acid) dispersing element denaturation object cpp105 : [Nagase,] Pori 9, 9-dialkyl fluorene, Pori (thienylene -9, 9-dialkyl fluorene), Pori (2, 5-dialkyl PARAFENIREN-thienylene), a :(dialkyl: R=C1 - C20) DOW chemical company, PPV; poly para-phenylene vinylene, MEH-PPV; Pori (2-methoxy -5 -(2'-ethyl-HEKISHIROKISHI)- PARAFENIREMBINIREN), MMP-PPV; Pori (2-methoxy -5 -(2'-ethyl-cutting-pliers ROKISHI)- PARAFENIREMBINIREN), PDMPV Pori (2, 5-dimethyl-PARAFENIREMBINIREN), PTV; Pori (2, 5-thienylene vinylene), PDMOPV; Pori (2, 5-JIMETOKISHIPARA phenylenevinylene), and CN-PPV; Pori (1, 4-PARAFENIRENSHIANO vinylene):CDT is mentioned.
[0041] Moreover, the ingredient of the luminous layer in which wet spreading is possible is good also as what is not restricted to a macromolecule system ingredient, carries out polymer distribution and uses a low-molecular ingredient. Moreover, it is good also as what uses a low-molecular ingredient in the condition of having melted to the solvent depending on the property of a low-molecular ingredient, carrying out wet spreading. And as a polymer at the time of carrying out polymer distribution of the low-molecular ingredient, the various polymers containing a well-known general-purpose polymer can be used according to a situation. and as a low-molecular luminescent material (photogene or dopant) An anthracene, naphthalene, a phenanthrene, a pyrene, tetracene, Coronene, a chrysene, a fluorescein, perylene, phtalo perylene, Non [naphthalo perylene and peri non, / phtalo peri non, / naphthalo peri] A diphenyl butadiene, a tetra-phenyl butadiene, a coumarin, OKISA diazole, Aldazine, bis-benzoKIZORIN, bis-styryl, pyrazine, an oxine, An amino quinoline, an imine, diphenylethylene, a vinyl anthracene, A diamino carbazole, a pyran, thiopyran, poly methine, merocyanine, 4-dicyanomethylene-4H-pyrans, such as an imidazole chelation oxy-NOIDO compound, and 4-dicyanomethylene-4H-thiopyran, diketone, chlorin system compounds, and these derivatives are mentioned.
[0042] and -- as the concrete goods used as a low-molecular luminescent material -- Alq3 and Quinacridone: -- said -- Renhua -- a study lab, the Almq3(derivative of aluminum quinolinol complex):Chemiprokasei coumarin 6, a DCM:bitter taste loss company, RUMOGEN F:Yamamoto commerce, etc. are mentioned. In addition, luminescent material should just be an ingredient which it is not limited to an above-mentioned thing and can form the organic electroluminescence luminous layers 3r, 3g, and 3b by spreading.
[0043] While the above-mentioned cathode 4 is formed in the shape of a field on each organic electroluminescence luminous layers 3r and 3g and 3b of one thickness of each organic

electroluminescence luminous layers 3r, 3g, and 3b, and the level difference produced since anode 2 -- is thicker than thickness and the sum, it dissociates mutually, but since the conductive paste layer 7 connects mutually, the septum resist 8 is same electric potential substantially.

[0044] And in the organic electroluminescence luminescence equipment of the first example, the cathode terminal 6 is formed in the location which is the other-end section side of the organic electroluminescence luminous layers 3r, 3g, and 3b on the transparence substrate 1, and was estranged from these organic electroluminescence luminous layers 3r, 3g, and 3b and anode 2 --, and it connects with the conductive paste layer 7. The cathode terminal 6 is connected with an external circuit, and the predetermined electrical potential difference is supplied.

[0045] Since it is sufficiently thicker than the thickness of the septum resist 8, the conductive paste layer 7 is formed so that it may lap with some cathode terminals 6, while lapping with the part (opening 8a of the septum resist 8 -- part) of the other-end section of all the organic electroluminescence luminous layers 3r, 3g, and 3b. In addition, the conductive paste layer 7 coats conductive pastes, such as well-known silver, and is formed.

[0046] In addition, in the first example, it is in the condition that anode 2 -- is not formed in the bottom of the other-end section which laps with the conductive paste layer 7 of the organic electroluminescence luminous layers 3r, 3g, and 3b. This shall not prepare anode 2 -- in the part in which the conductive paste layer 7 is formed, in order to aim at improvement in the yield with the pressure also in consideration of possibility that a cathode 4 will connect with anode 2 -- by which opposite arrangement is carried out on both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b too hastily being slight, in case the conductive paste layer 7 is coated.

[0047] And in the organic electroluminescence luminescence equipment of the first above-mentioned example, the septum resist 8 used in case patterning formation of the above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b is carried out by wet spreading is formed. All the organic electroluminescence luminous layers 3r, 3g, and 3b are formed within limits in which this septum resist 8 is formed on the transparence substrate 1 with which anode 2 -- and the cathode terminal 6 which consist of ITO were formed here, and was gone across and formed in the range larger than the part by which all the organic electroluminescence luminous layers 3r, 3g, and 3b are arranged, and this septum resist 8 was formed. And opening 8a-- is formed in the part in which each organic electroluminescence luminous layers 3r, 3g, and 3b are formed plurality and in the shape of a stripe, and it is in the condition that the anode 2 was exposed from this opening 8a-- at the septum resist 8. Moreover, as for the septum resist 8 shown in drawing 1 (B), the thickness L1 is set to 0.015mm (preferably 0.005mm or more).

[0048] And the septum resist 8 consists of a well-known photopolymer, and patterning is carried out with photolithography. And a part serves as a groove of above-mentioned opening 8a-- which makes transparence substrate 1 top face (it is an anode 2 in fact -- top face) a pars basilaris ossis occipitalis by forming the septum resist 8 which has opening 8a-- as mentioned above on the transparence substrate 1. The ingredient of the liquefied organic electroluminescence luminous layers 3r, 3g, and 3b is injected into this part by the general-purpose high precision dispenser, for example. That is, it is each opening 8a about the tip of the needle (needle) of a dispenser. -- It arranges in a location and is opening 8a. -- A liquefied ingredient is poured in inside. Even if itself is fusing the condition of the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b at the time of impregnation, it may be in the condition distributed by homogeneity within the solvent also in the condition of having acted to the solvent as Tokai. And even if the polymerization has already been carried out at this time and the polymerization is started, in the condition that the polymerization is not started yet is sufficient. Although the poured-in ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is hardened behind and serves as the organic electroluminescence luminous layers 3r, 3g, and 3b, it has the inclination for the thickness to become thin compared with hardening before in that case. The septum resist 8 is opening 8a so that it may become the thickness which is extent to which the organic electroluminescence luminous layers 3r, 3g, and 3b can fully emit light. -- Even if the ingredient of the liquefied organic electroluminescence luminous layers 3r, 3g, and 3b is poured in inside, it is set as the

thickness of extent of opening 8a-- which does not fall from a top, and membranes are formed. Moreover, when each organic electroluminescence luminous layers 3r, 3g, and 3b consist of two or more carrier transportation layers, the same polymer system ingredient which serves as a hole transportation layer at the beginning is poured into full open regio-oralis 8a--. The polymer system ingredient poured in from the needle of a dispenser advances along with opening 8a of the septum resist 8 by capillarity, and is deposited on uniform thickness. Usually, although the luminescence minimum pitch of organic electroluminescence becomes so short that the amount of the breathed-out organic electroluminescence ingredient is small since an organic electroluminescence ingredient does not spread so much when an organic electroluminescence ingredient is breathed out by the ink jet method and two or more luminescence pixels are formed in the shape of a matrix Although a luminescence minimum pitch becomes long and the luminescence field of a high definition pitch cannot be formed if there is much minimum discharge quantity, in this way While shortening the minimum luminescence pitch more to discharge quantity and being made to uniform thickness since it extends along with opening 8a if the regurgitation of the polymer system ingredient poured in from a needle is carried out into the long and slender slit surrounded more by opening 8a, the pitch can be easily made regularity. Subsequently, opening 8a-- in which organic electroluminescence luminous layer 3r which emits light in red similarly is formed after a hole transportation layer hardens, To opening 8a-- in which organic electroluminescence luminous layer 3b which emits light green is formed, and opening 8a-- in which 3g of organic electroluminescence luminous layers which emit light in blue is formed Respectively, the polymer system ingredient (if wet spreading is possible, a low-molecular ingredient is also good) of a different luminous layer corresponding to the luminescent color is poured in, and it deposits in each opening 8 at respectively uniform thickness. And again, after a luminous layer hardens, full open regio-oralis 8a-- is made to pour in and harden the polymer system ingredient used as an electronic transportation layer, and the organic electroluminescence luminous layers 3r, 3g, and 3b are formed.

[0049] Making it be a ****, by things, as compared with vacuum evaporationo and the case where patterning formation of the stripe-like organic electroluminescence luminous layers 3r, 3g, and 3b is carried out using a printing method etc., finer patterning becomes possible (based on the precision of patterning in the photolithography of the septum resist 8), and each band-like organic electroluminescence luminous layers 3r and 3g and spacing (pitch) of 3b can be made short. In addition, when carrying out color mixture of the light of each organic electroluminescence luminous layers 3r, 3g, and 3b by making short the pitch of the organic electroluminescence luminous layers 3r, 3g, and 3b, it becomes possible to carry out color mixture in a shorter distance so that it may mention later, and it becomes possible to make thickness of organic electroluminescence luminescence equipment very thin. In addition, in case the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is poured into each opening 8a-- of every [of the septum resist 8] with a dispenser, the minimum regurgitation precision by the dispenser serves as order which is severalmicrol, and the coverage control by the high precision dispenser general-purpose enough is possible.

[0050] Moreover, when using the septum resist 8 as mentioned above, while considering as the condition or the condition of having pushed which attached the board used as a lid on the septum resist 8, for example, an inlet and an exhaust port may be formed in this board etc. And it is good also as what makes opening 8a-- the shape of the interior of tubing, and pours the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b into opening 8a-- from an inlet by being in the condition that opening 8a-- of the septum resist 8 had up-and-down opening blockaded by the transparence substrate 1 and the board. If it does in this way, it will be opening 8a easily by capillarity. -- The ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b can be poured in inside.

[0051] And as mentioned above, on the transparence substrate 1, by ITO, the manufacture approach of the organic electroluminescence luminescence equipment shown in drawing 1 carries out pattern formation of anode 2 -- and the cathode terminal 6 in a short pitch with photolithography, forms the organic electroluminescence luminous layers 3r, 3g, and 3b on the transparence substrate 1 after forming the septum resist 8, and, subsequently to in opening 8a of the septum resist 8, subsequently, carries out

vacuum evaporationo membrane formation of the cathode 4, for example. And capillary tube impregnation of the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is carried out at opening 8a-- of the septum resist 8 (although opening 8a-- is a groove, capillarity acts between the walls of the right and left which form a slot). Moreover, on the occasion of impregnation of the organic electroluminescence luminous layers 3r, 3g, and 3b, it carries out to the stratification. For example, in order of an electron hole transportation layer, a luminous layer, and an electronic transportation layer, impregnation of an ingredient and desiccation (hardening) are repeated and are performed. Moreover, since a cathode 4 will be in the condition (it insulated) of having become independent to every opening 8a-- so that it may mention later when the septum resist 8 is formed, it is each opening 8a by the conductive paste layer 7. -- Cathode 4 inner comrades and the inner cathode terminal 6 are short-circuited, respectively. Moreover, the formation approach of various kinds of above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b is applicable also to organic electroluminescence luminescence equipment and the organic electroluminescence display of the second less than example which are mentioned later.

[0052] A configuration is simplified and illustrated in order that drawing 1 may give easy explanation of the configuration of the organic electroluminescence luminescence equipment of the first example. And in fact As shown in drawing 1 , three organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light in a color different, respectively are made into a lot, and as the organic electroluminescence luminescence fields 5r, 5g, and 5b of this lot are shown in drawing 2 , a large number are arranged in the shape of a stripe in this order. In addition, drawing 2 R> 2 shows the luminescence side A of the organic electroluminescence luminescence equipment used as for example, a back light for 3.8 inch LCD, and the part of each line arranged in the shape of a stripe shows the organic electroluminescence luminescence fields 5r, 5g, and 5b of a lot. [many] And if it explains more concretely, lateral width of face is set to 82.4mm, and, as for the size of a luminescence side, width of face of a lengthwise direction is set to 63.2mm. And three organic electroluminescence luminescence fields 5r, 5g, and 5b used as a RGB lot are arranged 274 sets and in the shape of a stripe (the organic electroluminescence luminescence fields 5r, 5g, and 5b are arranged in the shape of 822 stripes).

[0053] And width of face of one band which consists of three organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light in three colors of RGB is set to about 0.3mm. And as shown in drawing 1 (B), the pitch L2 of each organic electroluminescence luminescence fields 5r, 5g, and 5b is set to about 0.1mm. In addition, width of face L3 of each organic electroluminescence luminous layers 3r, 3g, and 3b is set to about 0.06mm, and spacing L4 (width of face of the septum of a septum resist) of each organic electroluminescence luminous layers 3r and 3g and 3b is set to about 0.04mm. Moreover, opening 8a of the septum resist 8 -- A pitch will also be set to about 0.1mm. Moreover, the pitch of an anode 2 is also set to about 0.1mm, width of face L5 of an anode 2 is set to about 0.08mm, and spacing L6 between anodes is set to about 0.02mm. In addition, when this invention is not limited and thickness of the transparence substrate 1 is set [for example,] to 0.3mm, such sizes are examples of the size in which the color which emitted light from the organic electroluminescence luminescence fields 5r, 5g, and 5b of each color fully carries out color mixture in the front face (field where the field in which the organic electroluminescence luminescence fields 5r, 5g, and 5b were formed is opposite) of the transparence substrate 1, as mentioned later.

[0054] Here, the color mixture of luminescence of each color is explained from the organic electroluminescence luminescence fields 5r, 5g, and 5b of each color within the glass substrate (transparence substrate 1) with which the organic electroluminescence luminescence fields 5r, 5g, and 5b were formed in the tooth-back side. Drawing 3 shows the route of light by the arrow head in the organic electroluminescence luminescence equipment which consists of a transparence substrate 1 which the light from the organic electroluminescence luminous layer 3 penetrates as well as the organic electroluminescence luminous layer 3 (3r, 3g, 3b) which is the cathode 4 and emitter which act as a reflecting plate, and the anode 2 which is the transparent electrode which the light from this organic electroluminescence luminous layer 3 penetrates. In addition, a part will go to the transparence substrate 1 side, after a part reflects in a cathode the light which emitted light from the organic

electroluminescence luminous layer 3 toward the direct transparence substrate 1 side. Moreover, in drawing 3 , the arrow head shows the route of light supposing the organic electroluminescence luminous layer 3 carrying out perfect diffusion luminescence.

[0055] And as shown in drawing 3 , the light with a small include angle is emitted into mind through the organic electroluminescence luminous layer 3, an anode 2, and the transparence substrate 1 to the direction of a normal of the front face of a transparence substrate. Moreover, the light with a big include angle will be reflected to the above-mentioned normal direction in the interface of the organic electroluminescence luminous layer 3 and an anode 2, the interface of an anode 2 and the transparence substrate 1, and the interface of the transparence substrate 1 and the open air, without carrying out front injection. And most light which the reflected light repeats reflection within each class, or returns to a front layer and which was finally reflected although it will graze will be injected from the end face of each class, or it will be absorbed in each class.

[0056] Therefore, when 1.60 and an anode 2 set it as 2.00 and the transparence substrate 1.45 and the open air sets [the organic electroluminescence luminous layer 3] the refractive index of each class to 1.0008, front radiation of the light of 38.7 or less (whenever [total reflection critical angle]) degrees will be carried out for an include angle [as opposed to the normal within a transparence substrate in injecting / only the light of a specific include angle / finally /-to normal ****] here. And the light which has an include angle larger than it to the direction of a normal can be disregarded. Therefore, in order to fully carry out color mixture of each luminescent color from the organic electroluminescence luminescence fields 5r, 5g, and 5b within the transparence substrate 1, it is necessary to make it each coloring light of less than lap within the transparence substrate 1 whenever [total reflection critical angle] in organic electroluminescence luminescence equipment.

[0057] Drawing 4 shows the lap of each luminescent color within the above-mentioned thickness (0.3mm) transparence substrate 1 in the case of having arranged each organic electroluminescence luminous layer 3 which has above-mentioned width of face (0.06mm) in the above-mentioned pitch (0.1mm) using the transparence substrate 1 which it has. And in the transparence substrate 1, to the direction of a normal, the light r, g, and b of 38 or less than 7 times, i.e., the light emitted from the front face of the transparence substrate of each organic electroluminescence luminescence field on condition that a ****, is illustrated to the flabellate form, and it is shown in drawing 4 as mentioned above that each luminescent color is carrying out color mixture. In addition, while the thickness of the transparence substrate 1 is not limited to above-mentioned thickness and the refractive index of each class may also change with the differences in the presentation and quality of the material, the transparence substrate 1 may not meet with the open air, and the width of face and the pitch of each organic electroluminescence luminous layers 3r, 3g, and 3b need to be decided corresponding to values, such as thickness of the transparence substrate 1, and a refractive index of each class. Moreover, it sets to drawing 4 and is an anode 2. -- Illustration is omitted.

[0058] And according to the organic electroluminescence luminescence equipment of the first example, color mixture of the RGB three primary colors can be carried out, and light can be emitted in white. Moreover, since it is not necessary in each organic electroluminescence luminescence fields 5r, 5g, and 5b to make two or more luminescent material intermingled, or to carry out a laminating in this case, high brightness is realizable with a low power. Moreover, since each organic electroluminescence luminescence fields 5r, 5g, and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) are formed in the shape of a stripe, each organic electroluminescence luminescence fields 5r, 5g, and 5b can be arranged in the shape of a mosaic, or it can manufacture easily and cheaply as compared with the case where each field has been distributed and arranged. And while the part of an organic EL device of the component body except the transparence substrate 1, a closure part, etc. is very thin and thin-shape-izing is possible from the first Since color mixture of each luminescent color is carried out and white can be obtained even if it makes the transparence substrate 1 thin if the pitch of the organic electroluminescence luminescence fields 5r, 5g, and 5b arranged in the shape of a stripe as mentioned above is narrowed The organic electroluminescence luminescence equipment of the first example can be suitably used as a back light of non-spontaneous light indicating equipments, such as LCD.

[0059] Moreover, the power consumption value of per 50 (cm2) at the 1000 (cd/m2) time of brightness of the organic electroluminescence luminescence equipment of the first example with which Table 1 shown below is shown in drawing 2 , The brightness 1000 (cd/m2) at the time of using the organic EL device which performs white luminescence to the luminous layer which consists of one conventional layer with one component by intermingling the luminescent material of the luminescent color different, respectively as a back light, And the power consumption value of per 50 (cm2) in the 2 (lm/W) time is shown. In addition, these values are the things at the time of making magnitude of a luminescence side into 3.8 inches (width: a vertical ratio 4:3) of vertical angles. Moreover, based on each luminous efficiency of the organic polymer EL element of the red shown in Table 2 shown below, an organic green polymer EL element, and an organic blue polymer EL element, the trial calculation of the property of the organic electroluminescence luminescence equipment of the first example is made as what has arranged these organic EL devices in the shape of a stripe as above-mentioned organic electroluminescence luminescence fields 5r, 5g, and 5b.

[0060]

[Table 1]

	本発明の 有機ＥＬ混色白色	従来の 有機ＥＬ白色発光
消費電力	128mW	約 4000mW
発光効率 (m/W)	4.5	7.85

[Table 2]

	赤	緑	青
色度	(0.61, 0.38)	(0.38, 0.58)	(0.18, 0.24)
発光効率 lm/W	3.4	7.0	3.0
輝度比	31	19	50
消費電力 ($W/50cm^2$)	1.4	0.4	2.6

[0061] Moreover, as shown in Table 1, even if the power consumption per unit area is very low as compared with the organic EL device with which the organic electroluminescence luminescence equipment of the first example makes white emit light with one conventional component and the luminous efficiency of the above-mentioned organic EL device becomes high somewhat from an above-mentioned value, it turns out that the organic electroluminescence luminescence equipment of this invention is more advantageous. Moreover, it is possible it to be a possible value that it is efficient, even if it compares with the back light which used fluorescence tubing and a light guide plate, and to fully use the organic electroluminescence luminescence equipment of the first example, replacing with the back light using fluorescence tubing and a light guide plate, and for this to attain thin shape-ization of a non-spontaneous light display. Moreover, since the organic EL device is used for the organic electroluminescence luminescence equipment of this invention, the adjustment to proper brightness is easy for it.

[0062] Moreover, in the organic electroluminescence luminescence equipment of the first example, since anode 2 -- has been independent to each organic electroluminescence luminescence fields 5r and 5g and every 5b, a drive current is controlled to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and brightness can be changed into them. Therefore, in the organic electroluminescence luminescence equipment of the first example, brightness is controlled to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and a whiteness degree can be adjusted

to them. That is, the whiteness degree of the arbitration which suited the transparency property of the light of the LCD panel (for example, LCD equipped with the color filter) is realizable by changing the brightness balance of RGB. Moreover, since each organic electroluminescence luminescence fields 5r, 5g, and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) are made into the shape of a stripe as mentioned above By anode 2 -- or forming a cathode 4 in the shape of a stripe, when the organic electroluminescence luminescence fields 5r, 5g, and 5b have been arranged in the shape of a mosaic, or when it distributes finely and the organic electroluminescence luminescence fields 5r, 5g, and 5b have been arranged, it compares. A cathode 4 can be easily made into anode 2 --, or the organic electroluminescence luminescence fields 5r and 5g and the thing which became independent to every 5b.

[0063] Moreover, in the organic electroluminescence luminescence equipment of the first example, light can be mostly emitted in the color of arbitration by controlling brightness to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b in addition to white luminescence. Moreover, by switching to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, it is also possible to carry out sequential luminescence of the light of three colors of RGB, and when it considers as such a configuration, it can use as a back light of field sequential full color LCD. Since especially organic electroluminescence luminescence equipment has the very small electric capacity of an illuminant fundamentally and can be switched to a high speed, it can be suitably used for a high speed as a back light of field sequential full color LCD which needs to change the luminescent color (since the high-speed response for 100 or less ns is possible for an organic EL device). As liquid crystal applied to the high-speed response LCD, a ferroelectric liquid crystal and antiferroelectricity liquid crystal are mentioned.

[0064] In addition, in the first example, as shown in drawing 1 , although area of the organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color was made almost the same, the width of face of the organic electroluminescence luminescence fields 5r, 5g, and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) of each luminescent color as the almost same thing, for example The organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color It is good also as what changes width of face into each organic electroluminescence luminescence fields 5r and 5g and every 5b, and changes the area with luminescent material used corresponding to the brightness based on the luminescent material of each organic electroluminescence luminescence fields 5r, 5g, and 5b since the brightness differs even if it drives with the same power.

[0065] Namely, since the organic EL device using the luminescent material which the organic EL device using the luminescent material which generally emits light green has high brightness, and emits light in red is low, brightness Width of face of 5g of organic electroluminescence luminescence fields which emit light green (3g of organic electroluminescence luminous layers) is made narrower than the width of face of organic electroluminescence luminescence field 5r (organic electroluminescence luminous layer 3r) which emits light in red. In the thing, then manufacture phase corresponding to those width of face for area of the organic electroluminescence luminescence fields 5r, 5g, and 5b of the almost same die length, the brightness of each organic electroluminescence luminescence fields 5r, 5g, and 5b can be adjusted. [of each luminescent color]

[0066] Moreover, since anode 2 -- is separated and formed in every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, the electrical potential difference impressed to each so that thing white luminescence with sufficient balance can be performed in the optimal chromaticity may be optimized. However, even if it is equal applied voltage or force current, both cathodes 4 can be made to emit light with anode 2 -- in the color which was beforehand set up also as one common common electrode, respectively and to desire in each organic electroluminescence luminescence fields 5r, 5g, and 5b, when the brightness balance of each organic electroluminescence luminescence fields 5r, 5g, and 5b is the optimal.

[0067] Next, with reference to drawing 5 , the organic electroluminescence luminescence equipment of the second example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence luminescence equipment of the second example changes the configuration of some organic electroluminescence luminescence equipments of the first example, gives the same sign to the same component as the organic electroluminescence luminescence equipment of the first example, and omits the explanation. In addition, in drawing 5 (B), the organic electroluminescence luminous layers 3r, 3g, and 3b, the cathode 4, and the conductive paste layer 7 are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid. The organic electroluminescence luminescence fields 5r, 5g, and 5b are formed in the shape of a stripe on the transparence substrate 1 like the first example by the organic electroluminescence luminescence equipment of the second example shown in drawing 5 (B) anode 2 -- and by forming the cathode terminal 6, the septum resist 8, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, and the conductive paste layer 7. Drawing 5 illustrates the outline of the organic electroluminescence luminescence equipment of the second example. And in fact While three organic electroluminescence luminescence fields 5r, 5g, and 5b where the luminescent color was made into red, green, and blue, respectively are mutually formed in band-like in parallel Many organic electroluminescence luminescence fields 5r, 5g, and 5b which make these three a lot are mutually arranged in parallel like the organic electroluminescence luminescence equipment of the 1st example shown in drawing 2 .

[0068] And the configurations of the septum resist 8 differ by the first example and the second example, and the organic electroluminescence luminescence equipment of the second example has the same composition as the first example in other points. And although opening 8b-- is formed in the shape of a stripe like the first example as the septum resist 8 in the organic electroluminescence luminescence equipment of the second example is shown in drawing 5 (A) and (B), at least one or more extension section 8c-- is formed in each opening 8b--, respectively. This extension section 8c-- is made large in width of face as compared with other parts of opening 8b. And in the second example, it is opening 8b-- which adjoins each other mutually, and is [-- It enables it to form extension section 8c-- with width of face wide as much as possible in the gap between comrades.] extension section 8c. -- Opening 8b which shifts a location and adjoins each other -- It sets in the gap between comrades and is extension section 8c. -- Opening 8b which it is made for comrades not to lap and was restricted

[0069] Moreover, extension section 8c -- The die length of opening 8b-- which met in the die-length direction is extension section 8c. -- It is the same as that of width of face almost, or a ******** is more desirable than it. And in case above-mentioned extension section 8c-- pours in the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b with a dispenser, it can be made into the location which arranges the needle of a dispenser. And above-mentioned extension section 8c -- It becomes possible by preparing to compensate the location precision at the tip of a needle of a dispenser. That is, when the width of face of the location of opening 8b-- of the septum resist 8 which arranges the above-mentioned needle tip is large, a needle tip can be doubled with opening 8b-- more easily and certainly.

[0070] Moreover, it can prevent that an ingredient falls besides opening 8b from a needle to ingredient ****** by making large width of face of the location where a needle is arranged of opening 8b--. Therefore, in the organic electroluminescence luminescence equipment of the second example, while being able to do so the same operation effectiveness as the first example, in manufacture of organic electroluminescence luminescence equipment, improvement in the yield can be aimed at by preparing extension section 8c-- in opening 8b of the septum resist 8. Moreover, it can respond to pouring in an ingredient with a needle from two or more places in one opening by preparing two or more extension section 8c-- in one opening 8b--. In addition, if it enables it to pour an ingredient into one opening 8b-- from two or more places, when the elongation which met in the die-length direction of opening 8b by the viscosity of an ingredient being high in opening 8b etc. is bad, an ingredient can be certainly poured into the whole opening 8b. Moreover, if an ingredient can be poured into coincidence from two or more places, compaction of working hours can be aimed at.

[0071] Drawing 5 (C) shows the modification of the second above-mentioned example, and the organic electroluminescence luminescence equipment of this modification has the same configuration as the organic electroluminescence luminescence equipment of the second example except for the configuration of the septum resist 8. And in the septum resist 8 of a modification, although extension section 8e-- is prepared in 8d [of openings] -- like the second example While this extension section 8e-- has composition of 8d [of openings] -- formed in one of edges, in the openings 8d and 8d of an adjacent pair, the location in which extension section 8e-- is prepared by 8d of one openings and 8d of openings of another side serves as an edge of the opposite side mutually. And the edge in which the extension section of 8d of one openings is not prepared is to the near side of extension section 8e of one edge of 8d of openings of another side. And in 8d [of each opening] --, the width of face (die length which intersects perpendicularly in the die-length direction of 8d of openings) of extension section 8e is what applied the width of face of the gap for 8d of these openings, and 8d to the width of face of 8d of openings, and 8d two duties. Therefore, while it is possible to make width of face of extension section 8e larger than the second above-mentioned example while being able to do so the operation effectiveness same in this modification as the ****** and above-mentioned second example and being able to arrange the needle of a dispenser to extension section 8e-- more certainly, ****** in the arrangement location of a needle can be prevented. That is, extension section 8e-- can be more efficiently arranged to 8d [of openings] --.

[0072] Next, with reference to drawing 6 and drawing 7 , the organic electroluminescence luminescence equipment of the third example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence luminescence equipment of the third example changes the configuration of some organic electroluminescence luminescence equipments of the first example, gives the same sign to the same component as the organic electroluminescence luminescence equipment of the first example, and omits the explanation. In drawing 6 In addition, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, the conductive paste layers 7 and 7r, Illustrate 7g and 7b in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid, and they are set to drawing 7 . While illustrating the organic electroluminescence luminous layers 3r, 3g, and 3b and the septum resist 9 in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid, illustration of a cathode 4 and the conductive paste layers 7, 7r, 7g, and 7b is omitted. And drawing 6 and drawing 7 illustrate the same organic electroluminescence luminescence equipment.

[0073] The organic electroluminescence luminescence fields 5r, 5g, and 5b are formed in the shape of a stripe on the transparence substrate 1 like the first example by the organic electroluminescence luminescence equipment of the third example shown in drawing 6 and drawing 7 anode 2 -- and by forming the cathode terminal 6, the septum resist 9, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, and the conductive paste layer 7. Drawing 6 and drawing 7 illustrate the outline of the organic electroluminescence luminescence equipment of the third example. And in fact While three organic electroluminescence luminescence fields 5r, 5g, and 5b where the luminescent color was made into red, green, and blue, respectively are mutually formed in band-like in parallel Many fields 5r, 5g, and 5b from organic electroluminescence which make these three a lot are mutually arranged in parallel like the organic electroluminescence luminescence equipment of the 1st example shown in drawing 2 R> 2.

[0074] And having formed the structure for drawer wiring of anode 2 -- on the transparence substrate 1, so that it could connect with the exterior at every organic electroluminescence luminescence field 5r and 5g of each color (class) and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) differ by the first example and the third example. Namely, in the first example and the second example, it receives having used [of anode 2 -- formed in each organic electroluminescence luminescence fields 5r and 5g and every 5b] one edge as each organic electroluminescence luminescence fields 5r and 5g and the anode terminal of every 5b as it was. Anode 2 -- of each organic electroluminescence luminescence fields 5r and 5g and every 5b is summarized to the organic electroluminescence luminescence fields 5r and 5g of the various kinds which emit light in each color, and every 5b, and it is made to connect with

the anode terminals 2r and 2g for every luminescent color, and 2b on the transparence substrate 1 in the third example. Below, a different part from the first example of the third example is explained.
[0075] He is trying for each anode 2 -- to differ in die length in every organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, as shown in drawing 6 and drawing 7 , one edge is made into a different location for every luminescent color of each anode 2 -- by arranging the location, as for the other-end section by the side of the cathode terminal 6 (the thing of the same luminescent color arranged), and it is ******. For example, one edge of the anode 2 of red organic electroluminescence luminescence field 5r is [the luminescent color] short, and one edge has the long luminescent color and, as for the anode 2 of blue organic electroluminescence luminescence field 5b, let it be the die length between two above-mentioned anodes 2, as for the anode 2 which is 5g of organic electroluminescence luminescence fields where the luminescent color is green. That is, while the location of one edge of an anode 2 is changed for every luminescent color, the location of one same terminal of the anode 2 of the luminescent color is mostly arranged on the straight line which intersects perpendicularly in the die-length direction of an anode 2 mostly. And the anode terminals 2r and 2g of the number corresponding to the number of the classes of luminescent color of the organic electroluminescence luminescence fields 5r, 5g, and 5b (here three) in the transparence substrate 1 top of the side of all anode 2 -- and 2b are formed from ITO.
[0076] In case the above-mentioned anode terminals 2r and 2g and 2b form anode 2 -- and the cathode terminal 6, while they are formed in coincidence, the location is in the anode terminals 2r and 2g corresponding to [support the location of one edge and] the same luminescent color of anode 2 -- for every luminescent color, 2b, and the condition of anode 2 -- that one edge was located in a line on the line of anode 2 -- which intersects perpendicularly in the die-length direction mostly. Therefore, in the organic electroluminescence luminescence equipment of the third example which has the three luminescent color, three trains which consist of two or more anode 2 -- the organic electroluminescence luminescence fields 5r and 5g which emit light in the same color, and for one anode terminals 2r and 2g, 2b, and 5b will be formed.
[0077] And unlike the 1st example and the 2nd example, it is formed in the range containing all the whole anode 2 including one edge of an anode 2, and the septum resist 9 of the third example is opening 9a of the opening 8a-- later mentioned while each anode 2 -- is exposed according to an individual in a location like the first example. -- Each anode 2 -- is exposed according to an individual in the location. While the same opening 8a-- as the septum resist 8 of the first example is formed in the septum resist 9, opening 9a-- is formed in the location corresponding to one edge of each anode 2 --. Therefore, it is the arrangement also with the location same [anode 2 --] of each opening 9a-- as one edge. In addition, also in the septum resist 9, the liquefied ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is poured into opening 8a-- like the case of the first example.
[0078] And anode terminal 2r corresponding to [as shown in drawing 6] the same luminescent color, While the band-like conductive paste layers 7r, 7g, and 7b are formed, respectively and each conductive paste layers 7r, 7g, and 7b are connected with the anode terminals 2r and 2g corresponding to the same luminescent color, and 2b over 2g, 2b, and opening 9a-- Anode 2 corresponding to the same luminescent color through opening 9a-- -- It connects with one edge. Namely, all the anodes 2 of organic electroluminescence luminescence field 5r from which the luminescent color serves as red, All the anodes 2 of 5g of organic electroluminescence luminescence fields where anode terminal 2r for red in the luminescent color is short-circuited by conductive paste layer 7r, and becomes green [the luminescent color], The luminescent color is short-circuited for 2g of anode terminals for green by 7g of conductive paste layers, and all the anodes 2 of organic electroluminescence luminescence field 5b from which the luminescent color serves as red, and anode terminal 2b for red in the luminescent color are short-circuited by conductive paste layer 7b. Moreover, each conductive paste layers 7r, 7g, and 7b are arranged almost in parallel so that it may not contact mutually. Therefore, since drive control can be carried out for every anode terminal 2r and 2g and 2b, it is possible to change brightness into every organic electroluminescence luminescence field 5r and 5g of each luminescent color and 5b, to change the color by which color mixture is finally carried out, or to turn on and off to every organic

electroluminescence luminescence field 5r and 5g of each luminescent color and 5b.
[0079] By the above configuration, the same operation effectiveness as the first example can be acquired in the organic electroluminescence luminescence equipment of the third example. Moreover, since it will connect with the same anode terminals 2r and 2g for the luminescent color, and 2b while anode 2 -- of the organic electroluminescence luminescence fields 5r, 5g, and 5b of the same luminescent color is mutually connected on a glass substrate, wiring which connects the anode terminals 2r and 2g and 2b for every luminescent color is not needed, but the configuration of organic electroluminescence luminescence equipment can be simplified on the outside of the transparence substrate 1. In case the anode terminals 2r and 2g and 2b form anode 2 -- and the cathode terminal 6, they can be formed in coincidence. Moreover, the septum resist 9 Except having opening 9a--, it is almost the same as that of the septum resist 8 of the first example, and can form like the septum resist 8 only by changing the configuration of patterning, and in case the conductive paste layers 7r, 7g, and 7b also form the conductive paste layer 7, it can form in coincidence.
[0080] Therefore, since it is not necessary to prepare wiring which can form the outgoing line which puts together the anode corresponding to each luminescent color, respectively on the transparence substrate 1, and is put together in the exterior of the transparence substrate 1 at every [corresponding to each luminescent color] anode 2 --, without increasing especially a process, the fabrication operation of organic electroluminescence luminescence equipment can be saved labor, and a cost cut can be aimed at. In addition, also in the third example, it is good also as what forms the extension section in opening 8a-- as shown in the second example and its modification.
[0081] Next, with reference to drawing 8 and drawing 9 , the organic electroluminescence luminescence equipment of the fourth example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence luminescence equipment of the fourth example changes the configuration of some organic electroluminescence luminescence equipments of the third example, gives the same sign to the same component as the organic electroluminescence luminescence equipment of the first example and the third example, and omits the explanation. In drawing 8 Moreover, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, conductive paste layer 7r, 7g and 7b are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid. While illustrating the organic electroluminescence luminous layers 3r, 3g, and 3b and the septum resist 9 in drawing 9 in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid, illustration of a cathode 4 and the conductive paste layers 7r, 7g, and 7b is omitted. And drawing 8 and drawing 9 illustrate the same organic electroluminescence luminescence equipment.
[0082] Two or more organic electroluminescence luminescence fields 5r, 5g, and 5b are formed on a stripe like the first example by the organic electroluminescence luminescence equipment of the fourth example shown in drawing 8 and drawing 9 by forming an anode 11, the cathode terminal 6, the septum resist 9, the organic electroluminescence luminous layers 3r, 3g, and 3b, and a cathode 4 on the transparence substrate 1. Drawing 8 and drawing 9 R> 9 illustrate the outline of the organic electroluminescence luminescence equipment of the fourth example. And in fact While three organic electroluminescence luminescence fields 5r, 5g, and 5b where the luminescent color was made into red, green, and blue, respectively are mutually formed in band-like in parallel Many organic electroluminescence luminescence fields 5r, 5g, and 5b which make these three a lot are mutually arranged in parallel like the organic electroluminescence luminescence equipment of the 1st example shown in drawing 2 .
[0083] And a point which is different by the third example and the fourth example is set to the organic electroluminescence luminescence equipment of the third example. Pack the cathode 4 of each organic electroluminescence luminescence fields 5r, 5g, and 5b into one, and it considers as a common electrode. And summarize anode 2 -- to every organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and it sets to the organic electroluminescence luminescence field of the fourth example to having enabled it to drive for every organic electroluminescence luminescence field of each luminescent color. It is summarizing anode 2 -- to one, and considering as a common

electrode, and packing a cathode 4 into every organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and enabling it to drive for every organic electroluminescence luminescence field of each luminescent color.

[0084] And as for the organic electroluminescence luminescence equipment of the fourth example, an anode 11 (anode terminal 11a is included), the cathode wiring 12r, 12g, and 12b, and the cathode terminals 13r, 13g, and 13b are formed from ITO on the above-mentioned transparence substrate 1 and this transparence substrate 1, respectively. An anode 11 is not formed in each organic electroluminescence luminescence fields 5r and 5g and every 5b like the 1-third example, but it is formed in the shape of [large] a field so that it may correspond to all the organic electroluminescence luminescence fields 5r, 5g, and 5b with one anode 11, and it serves as a common electrode as it is. Moreover, the cathode wiring 12r, 12g, and 12b is formed in each organic electroluminescence luminous layers 3r and 3g formed in the shape of a stripe on an anode 11, and every [one / every] 3b. And in the location distant from the anode 11, each cathode wiring 12r, 12g, and 12b is arranged, respectively so that it may become each corresponding organic electroluminescence luminous layers 3r, 3g, and 3b and a corresponding single tier.

[0085] Moreover, each cathode wiring 12r, 12g, and 12b The location of the edge by the side of the anode 11 (the organic electroluminescence luminous layerr [3] and 3g side, the 3b side) It is arranged so that it may be mostly arranged on the straight line which met in the direction which intersects perpendicularly with the stripe-like organic electroluminescence luminous layers 3r, 3g, and 3b mostly, respectively, and for every cathode corresponding to the organic electroluminescence luminous layers 3r, 3g, and 3b of each color, the location of the other-end section shall be changed and shall differ. Moreover, the cathode wiring 12r and 12g corresponding to the organic electroluminescence luminous layers 3r, 3g, and 3b of the same color and 12b are arranged so that it may be mostly arranged on the straight line which met in the direction in which the stripe-like organic electroluminescence luminous layers 3r, 3g, and 3b and the location of one edge cross at right angles mostly.

[0086] Each cathode terminals 13r, 13g, and 13b are arranged at the condition that the cathode terminals 13r, 13g, and 13b corresponding to each luminescent color and one edge of the cathode wiring 12r, 12g, and 12b corresponding to the organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color were located in a line with the single tier, respectively while they are formed in the side of the cathode wiring 12r, 12g, and 12b on the transparence substrate 1. namely, for the cathode terminals 13r, 13g, and 13b One edge of cathode terminal 13r for a **** and red in red, green, and every one thing corresponding to each blue luminescent color and cathode wiring 12r for all red is arranged together with a single tier, respectively. 13g of cathode terminals for green and the one side edge of 12g of all cathode wiring for green are arranged together with a single tier, and one edge of cathode terminal 13b for blue and cathode wiring 12b for all blue is arranged together with the single tier.

[0087] Moreover, between the anode 11 on the transparence substrate 1, and the cathode wiring 12r, 12g, and 12b, it is smeared for luminescent material, and the control layer 14 is formed in it so that these may be divided. When this **** control layer 14 pours the liquefied ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b into opening 8a-- of the septum resist 9 as mentioned above, it is smeared, prevents from applying a liquefied ingredient on a control layer 14, and functions as a kind of repellent.

[0088] And it is smeared and the ingredient of a control layer 14 consists of matter which makes surface energy low fundamentally. And as matter which makes surface energy low, the matter which has a long-chain alkyl group, a fluorine radical, and a silicon radical can be mentioned, for example. The copolymer which is smeared concretely, is made to carry out copolymerization of the monomer mixture containing at least tetrafluoroethylene and a kind of comonomer, and is obtained as an ingredient of a control layer 14, The fluorine-containing copolymer which has a cyclic structure object in a copolymerization principal chain, and polyethylene, polypropylene, polytetrafluoroethylene, polychlorotrifluoroethylene resin, poly dichlorodifluoroethene and chlorotrifluoroethylene, The comonomer in which a copolymer, and acrylonitrile, stearin acid vinyl, stearyl vinyl ether, acrylic-acid (meta) stearyl and other fluorine atoms with dichlorodifluoroethene are contained, The copolymer which

is made to carry out copolymerization of vinyl acetate and the propionic-acid vinyl, and is obtained as these, a copolymerizable comonomer, for example, (meta), an acrylic acid, acrylic ester (meta), and a compound that has a vinyl group is mentioned. Moreover, as concrete goods which are smeared and serve as an ingredient of a control layer 14, full ONETO K-703:Dainippon Ink & Chemicals, FURORINATO:Sumitomo 3M, SAITOPPU CTX-105A:Asahi Glass, FURORO barrier:Yasunari company, Teflon AF:Du Pont, PTFE grease:NICHIAS, etc. are mentioned as a fluorine system. Moreover, silicone resin (SH200: Toray Industries silicone etc.) may be blended and applied to a general-purpose polymer (acrylic resin, an epoxy resin, urethane resin) etc. Moreover, what is necessary is to be smeared, not to be limited to an above-mentioned thing as an ingredient of a control layer 14, to crawl the liquefied ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b, and just to be able to avoid applying.

[0089] And the septum resist 9 is formed on an anode 11, the cathode wiring 12r, 12g, and 12b, the cathode terminals 13r, 13g, and 13b, and the transparence substrate 1 with which it was smeared and the control layer 14 was formed. Opening 9a-- is formed by the septum resist 9 with opening 8a-- like the septum resist 9 of the third example. And each opening 8a-- is formed over the other-end section of each cathode wiring 12r, 12g, and 12b from on [of one] the anode 11. Namely, the cathode wiring 12r, 12g, and 12b corresponds by one to one with opening 8a--. It considers as the condition of each opening 8a-- that one edge and the other-end section of the cathode wiring 12r, 12g, and 12b lapped, and the anode 11 and the other-end section of one cathode wiring 12r, 12g, and 12b which were used as the common electrode are exposed from each opening 8a--.

[0090] Moreover, it is smeared the account of a top between the part of opening 8a-- which an anode 11 exposes, and the part which the edge of the cathode wiring 12r, 12g, and 12b exposes, and a control layer 14 is exposed to it. And although the above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b are formed by pouring an above-mentioned luminescent material into each opening 8a--, a liquefied luminescent material is injected into the part of opening 8a-- which an anode 11 exposes in this case. And the luminescent material poured into opening 8a-- is opening 8a. -- Inside is flowed along with opening 8a--, and it is opening 8a. -- In case it fills up inside, he is trying not to flow into the part which it is smeared and the other-end section of the cathode wiring 12r, 12g, and 12b exposes exceeding a control layer 14 by being smeared and crawling by the control layer 14.

[0091] Therefore, the organic electroluminescence luminous layers 3r, 3g, and 3b are smeared from the other-end section of opening 8a-- of the septum resist 9 which an anode 11 exposes, are formed in before the near side of a control layer 14, and are formed on the other-end section of the cathode wiring 12r, 12g, and 12b exposed from opening 8a--. On the other hand, opening 9a-- of the septum resist 9 is the anode 2 in the third example. -- It changes into one edge and one edge of each cathode wiring 12r, 12g, and 12b is exposed. And it corresponds to the arrangement location of one edge of each cathode wiring 12r, 12g, and 12b, and is opening 9a. -- The location is decided.

[0092] The above-mentioned cathode 4 is opening 8a of the septum resist 9 inside the periphery of the septum resist 9. -- It is formed so that most may be covered (a cathode 4 is formed in the side in which it is smeared with and opening 9a-- of the septum resist 9 is formed in addition from the control layer 14). And each opening 8a -- Since the inner cathode 4 is thinner than the thickness of the septum resist 9, With the level difference of the part and the other part of a septum of each opening 8a-- of the septum resist 9, as mentioned above It is formed in the condition of having disconnected electrically in opening 8a--, and is each opening 8a. -- It does not connect with the part of other cathodes 4 too hastily, but the inner cathode 4 is each opening 8a. -- It is the electrode which became independent for every part. And each opening 8a -- It is the part which an anode 11 exposes inside, and an anode 11 and a cathode 4 are made to counter in the condition of having made the organic electroluminescence luminous layers 3r, 3g, and 3b intervening in between, and it is the part which one edge of the cathode wiring 12r, 12g, and 12b exposes, and is in the condition that the cathode wiring 12r, 12g, and 12b and a cathode 4 contacted directly, and short-circuited. Therefore, each opening 8a-- of every, each organic electroluminescence luminescence fields 5r and 5g, and the cathode 4 that became independent to every 5b are connected to the respectively different cathode wiring 12r, 12g, and 12b.

[0093] And two or more opening 9a which the cathode wiring 12r, 12g, and 12b corresponding to the organic electroluminescence luminescence fields 5r, 5g, and 5b of the same luminescent color exposed -- From a top, it crosses on the cathode terminals 13r and 13g and 13b, and the band-like conductive paste layers 7r, 7g, and 7b thicker than the septum resist 9 are formed continuously, respectively. Here the conductive paste layers 7r, 7g, and 7b Since it is formed more thickly than the septum resist 9, conductive paste layer 7r While the luminescent color is connected by all cathode wiring 12r and opening 9a-- which are connected to red organic electroluminescence luminescence field 5r, it connects with cathode terminal 13r. While 7g of conductive paste layers is connected with 12g of all cathode wiring connected to 5g of organic electroluminescence luminescence fields where the luminescent color is green by opening 9a--, it connects with 13g of cathode terminals. Conductive paste layer 7b is connected to cathode terminal 13b while the luminescent color is connected by all cathode wiring 12b and opening 9a-- which are connected to blue organic electroluminescence luminescence field 5b.
[0094] Therefore, each organic electroluminescence luminous layers 3r, 3g, and 3b Since it considers as the condition of having been inserted into the anode 11 used as the common electrode, and the cathode 4 used as the electrode of opening 8a-- of the septum resist 9 which became independent with the level difference of a part to each organic electroluminescence luminescence fields 5r and 5g and every 5b Each organic electroluminescence luminescence fields 5r, 5g, and 5b are driven according to an individual. Moreover, the independent cathode 4 is short-circuited with the cathode wiring 12r, 12g, and 12b of opening 8a-- prepared in one edge circles in each organic electroluminescence luminescence fields 5r and 5g and every 5b.
[0095] On the other hand, it is opening 8a. -- Since the level difference of a septum etc. is not formed in order to form a part without the organic electroluminescence luminous layers 3r, 3g, and 3b inside, it is each opening 8a. -- [inside] The cathode 4 is formed in the condition of having flowed in one, and it is in the condition that an anode 11, cathode 4 part which countered, and the cathode wiring 12r, 12g, and 12b ******(ed) on both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b. Namely, opening 8a -- It can flow through the inner cathode 4, the cathode wiring 12r, 12g, and 12b, and **, without using the conductive paste layer 7. In addition, although the conductive paste layers 7r, 7g, and 7b are used in the fourth example in case the electrode of each organic electroluminescence luminescence fields 5r and 5g and every 5b is finally packed into the electrode for every luminescent color while using a cathode 4 as an independent electrode at each organic electroluminescence luminescence fields 5r and 5g and every 5b As shown in the third example from the first example, in using a cathode 4 as a common electrode, it shall not need the conductive paste layers 7, 7r, 7g, and 7b for completeness.
[0096] And each cathode wiring 12r, 12g, and 12b In opening 9a-- of the septum resist 9, while being short-circuited with the organic electroluminescence luminescence fields 5r, 5g, and 5b of the same luminescent color by the conductive paste layers 7r, 7g, and 7b It is in the condition that the conductive paste layers 7r, 7g, and 7b corresponding to the luminescent color were short-circuited by one to one by the cathode terminals 13r, 13g, and 13b formed one [at a time] for every luminescent color, respectively. Therefore, it is possible by changing driver voltage (current) into each cathode terminals 13r and 13g and every 13b to change brightness into every organic electroluminescence luminescence field 5r and 5g of each luminescent color and 5b, to change the color by which color mixture is finally carried out, or to turn on and off to the organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color.
[0097] Since according to the organic electroluminescence luminescence equipment of the fourth example of the above configurations wiring into which each organic electroluminescence luminescence fields 5r and 5g and the cathode 4 made into the condition of having become independent to every 5b are packed for every luminescent color is formed on the transparence substrate 1 while being able to acquire the same operation effectiveness as the case of the first example, although there is a difference between an anode and a cathode, it can acquire the same operation effectiveness as the case where it is the third example. Even if it does not carry out patterning of the cathode 4 minutely so that it may be especially formed in each organic electroluminescence luminescence fields 5r and 5g and every 5b

independently, by moreover, the septum resist 9 which has opening 8a-- Since it can consider as the configuration where it became independent to each organic electroluminescence luminescence fields 5r, 5g, and 5b, a cathode 4 can be made into the configuration where it became independent very easily to each organic electroluminescence luminescence fields 5r, 5g, and 5b. Moreover, opening 8a of the septum resist 9 -- The organic electroluminescence luminescence fields 5r and 5g and the cathode 4 in 5b are easily connectable with the exterior by [of surface energy / low] being smeared and forming a control layer 14 inside. In addition, also in the fourth example, it is good also as what forms the extension section in opening 8a-- as shown in the second example and its modification. Moreover, it is good also as what prepares a cathode terminal in each organic electroluminescence luminescence fields 5r and 5g and every 5b, without forming the cathode terminals 13r, 13g, and 13b for every luminescent color on the transparence substrate 1. Moreover, in the fourth example, it is good for the part which is smeared the account of a top and forms a control layer 14 and by which it changes, opening 8a-- of the septum resist 9 is smeared, and a control layer 14 is arranged also as what prepares the narrow-width part of opening 8a-- which narrowed width of face in the shape of a bottleneck. If it does in this way, it will be opening 8a. -- When the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is injected into the part which the inner anode 11 exposes, even if it will be in the condition that an ingredient is hard to flow previously from the narrow-width part used as a bottleneck, and is smeared the account of a top and it does not form a control layer 14, the operation effectiveness same with it having been smeared and having formed the control layer 14 can be acquired.

[0098] Next, with reference to drawing 10 , the organic electroluminescence luminescence equipment of the fifth example of the gestalt of operation of this invention is explained. In addition, to having used three kinds of organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light in the color (RGB) from which the organic electroluminescence luminescence equipment of the first example differs, respectively, two kinds of organic electroluminescence luminescence equipment 5r and 5bg(s) are used for the organic electroluminescence luminescence equipment of the 5th example, it gives the same sign to the same component as the first example, and omits the explanation. Moreover, in drawing 10 , organic electroluminescence luminous layer 3r, 3bg, the cathode 4, and the conductive paste layer 7 are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid.

[0099] As shown in drawing 10 , the organic electroluminescence luminescence equipment of the fifth example forms organic electroluminescence luminescence field 5r and 5bg in the shape of a stripe like the organic electroluminescence luminescence equipment of the first example by forming anode 2r, 2bg, the septum resist 8, organic electroluminescence luminous layer 3r, 3bg, a cathode 4, and the conductive paste layer 7 on the transparence substrate 1. And in the 5th example, it is two kinds such as organic electroluminescence luminous layer 3r which emits light in the orange of the large wavelength field which organic electroluminescence luminous layer 3r and 3bg cross green from red, and organic electroluminescence luminous layer 3bg which emits light in the bluish green color of the large wavelength field over blue since green, and two kinds of organic electroluminescence luminescence field 5r and 5bg(s) are formed from these two kinds of organic electroluminescence luminous layer 3r and 3bg(s). And the organic electroluminescence luminescence equipment shown in drawing 10 shows the outline, and is in the condition that much organic electroluminescence luminescence field 5r of a group and 5bg(s) [a majority of] have been arranged in parallel mutually band-like, in fact by making two kinds of organic electroluminescence luminescence field 5r and 5bg(s) into a lot. For example, it is in the condition that a large number arrangement of organic electroluminescence luminescence field 5r and the organic electroluminescence luminescence field 5bg was carried out together with alternation.

[0100] And in the organic electroluminescence luminescence equipment of the fifth example, as shown in drawing 10 , anode 2bg of the for anode 2r for organic electroluminescence luminescence field 5r of Orange and for bluish green organic electroluminescence luminescence field 5bg in the luminescent color in the luminescent color is formed in the shape of a stripe by turns on the transparence substrate 1. And one edges of all of anode 2r of the plurality [luminescent color] for organic electroluminescence luminescence field 5r of Orange are connected to anode terminal 15r for Orange, and all the other-end

sections of anode 2bg of the plurality [luminescent color] for bluish green organic electroluminescence luminescence field 5bg are connected to anode terminal 15bg. Therefore, anode 2r formed every each organic electroluminescence luminescence field 5r and 5bg on the transparence substrate 1 and 2bg are summarized for every luminescent color, and are connected to anode terminal 15r for each luminescent color, and 15bg so that organic electroluminescence luminescence field 5r and 5bg can be driven for every luminescent color.

[0101] In addition, anode terminal 15r and 15bg are formed from ITO. Moreover, anode 2r and 2bg are formed in the shape of a ctenidium from anode terminal 15r and 15bg, and are in the condition that anode 2bg of the shape of a ctenidium for the luminescent color of another side entered between anode 2r of the shape of a ctenidium for one luminescent color. That is, ITO of the pectinate form which consists of ITO of the pectinate form which consists of one anode 2r and anode terminal 15r, and anode 2bg of another side and anode terminal 15bg is arranged at the condition of having geared mutually. And on the transparence substrate 1, the cathode terminal 6 which consists of ITO is formed almost like the first example. In addition, since its its anode terminal 15r and 15bg are arranged at the both-ends side of each organic electroluminescence luminescence field 5r and 5bg, the cathode terminal 6 is arranged in the side of a part in which each organic electroluminescence luminescence field 5r and 5bg were formed.

[0102] And while the septum resist 8 is formed like the first example on the transparence substrate 1 with which anode 2r and 2bg were prepared, it is opening 8a of the septum resist 8. -- Each organic electroluminescence luminous layer 3r and 3bg are formed inside. And the cathode 4 is formed so that all may be covered on these organic electroluminescence luminous layer 3r and 3bg. And while short-circuiting the cathode 4 which became independent every each organic electroluminescence luminescence field 5r and 5bg by the septum resist 8 as mentioned above and considering as a common electrode, the conductive paste layer 7 is formed so that it may connect with the cathode terminal 6. That is, the conductive paste layer 7 is formed in band-like so that it may result in the cathode terminal 6, while it straddles each organic electroluminescence luminescence field 5r and 5bg.

[0103] Since according to the organic electroluminescence luminescence equipment of the fifth example which has such a configuration color mixture of the luminescent color of Orange and the bluish green luminescent color can be carried out and the white luminescent color can be obtained where the class of organic electroluminescence luminescence field 5r and 5bg (organic electroluminescence luminous layer 3r, 3bg) is reduced from three to two, the same operation effectiveness as the first example can be acquired with a easier configuration. Moreover, since organic electroluminescence luminescence field 5r and 5bg are driven for every luminescent color by setting the class of luminescent color of organic electroluminescence luminescence field 5r and 5bg to two While using anode 2r and 2bg as the independent electrode, in case wiring into which these electrodes are packed for every luminescent color on the transparence substrate 1 is carried out, the same operation effectiveness as the third example can be done so with a very easy configuration that what is necessary is just to arrange the electrode of a pectinate form in the condition of having geared mutually, as mentioned above.

[0104] In addition, in the organic electroluminescence luminescence equipment of the fifth example, it is good also as what prepares the extension section in opening 8a-- of the septum resist 8 like the second example and its modification. Moreover, in the fifth example, as shown in the first example, it sets on the transparence substrate 1. As it is good as what arranges an anode terminal every each organic electroluminescence luminescence field 5r and 5bg and is shown in the third example, without packing an anode terminal for every luminescent color It is good also as what prepares anode wiring every each organic electroluminescence luminescence field 5r and 5bg on the transparence substrate 1, summarizes this in a conductive paste layer for every luminescent color, and prepares an anode terminal for every luminescent color. Moreover, as shown in the 4th example, good of the cathode side may be carried out by using an anode side as a common electrode also as an electrode which became independent every each organic electroluminescence luminescence field 5r and 5bg, and wiring which packs into the cathode terminal for every luminescent color the cathode which became independent every each organic electroluminescence luminescence field 5r and 5bg on the transparence substrate 1 on this occasion may

be prepared.

[0105] Next, with reference to drawing 11 , the organic electroluminescence display of the sixth example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence display of the sixth example applies the organic electroluminescence luminescence equipment shown in each above-mentioned example, and uses it as a spontaneous light display, and many organic electroluminescence luminescence fields 5r, 5g, and 5b of a group are mutually formed in band-like in parallel like the organic electroluminescence luminescence equipment of each example by making into a lot the stripe-like organic electroluminescence luminescence fields 5r, 5g, and 5b where two or more luminescent color differs. In addition, in the organic electroluminescence display of the sixth example, the same sign is given to the same component as the organic electroluminescence luminescence equipment of each above-mentioned example, and the explanation is omitted. Moreover, in drawing 11 , the organic electroluminescence luminous layers 3r, 3g, and 3b and a cathode 4 are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid.

[0106] As shown in drawing 11 , as for the organic electroluminescence display of the sixth example, the shape of a stripe 16 and 16, i.e., the anodes of each other which become band-like [parallel / two or more] from ITO, is formed on the transparence substrate 1. These anodes 16 and 16 serve as a scan electrode in an organic electroluminescence display. In addition, the stripe-like anodes 16 and 16 and opening 8a-- of the shape of a stripe of the septum resist 8 mentioned later are arranged so that it may intersect perpendicularly mostly mutually. Moreover, on the transparence substrate 1, the cathode terminals 17r, 17g, and 17b which consist of ITO are formed. The cathode terminals 17r, 17g, and 17b consist of ITO, and it is formed by carrying out pattern formation of the ITO on the transparence substrate 1 with anodes 16 and 16. Moreover, the cathode terminals 17r, 17g, and 17b are opening 8a while being formed so that it may correspond by one to one with opening 8a-- of the septum resist 8. -- It is arranged so that one edge and one edge of the cathode terminals 17r, 17g, and 17b may lap, and it is each opening 8a. -- Each cathode terminals 17r, 17g, and 17b are exposed from one edge.

[0107] And the septum resist 8 equipped with stripe-like opening 8a-- like the organic electroluminescence luminescence equipment of each above-mentioned example is formed on the transparence substrate 1 with which anodes 16 and 16 were formed. And opening 8a formed in the shape of a stripe -- Inside, the organic electroluminescence luminous layers 3r, 3g, and 3b are formed like the organic electroluminescence luminescence equipment of each above-mentioned example. Here, in order to enable a full color display, while three kinds of organic electroluminescence luminous layers 3r, 3g, and 3b by which the luminescent color was made red, green, and blue, respectively are used, many organic electroluminescence luminous layers 3r, 3g, and 3b of a group will be arranged in the shape of a stripe considering ****** as a lot.

[0108] Moreover, in the septum resist 8 of the sixth example, 8f [of bottleneck / of the opening 8a-- / which made width of face narrower than other parts at one edge /-like narrow-width parts] -- is formed. 8f of these narrow-width parts is an outside [anode / 16 / which was formed in one edge side at the edge side of opening 8a-- which is one side most], and they are opening 8a. -- It is formed in the front location from one edge. And opening 8a -- When the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is poured into an other-end section side as mentioned above from 8f [of inner narrow-width parts] --, an ingredient flows ahead of 8f [of narrow-width parts] --, and it considers as ** conditions. It is in the condition of opening 8a-- that the organic electroluminescence luminous layers 3r, 3g, and 3b are not formed, and one edge of the above-mentioned cathode terminals 17r, 17g, and 17b is exposed to one edge from this part with this narrow-width part. Moreover, it is arranged outside the septum resist 8, and exposes, and one [the other-end section of the cathode terminals 17r, 17g, and 17b and / at least] terminal of anodes 16 and 16 can be connected now with the exterior.

[0109] And a cathode 4 is formed on the transparence substrate 1 with which the septum resist 8 was formed. The formation range of a cathode 4 is the inside [periphery / of the septum resist 8], and is range which can cover completely all opening 8a-- of the septum resist 8. And a cathode 4 is opening 8a

of the septum resist 8. -- It is each opening 8a by the level difference of a part. -- It is formed in an inner part and the condition of opening 8a-- that the exterior was disconnected (insulation). Therefore, a cathode 4 is opening 8a. -- It is the configuration where each organic electroluminescence luminous layers 3r, 3g, and 3b formed inside were met, and will be in each organic electroluminescence luminous layers 3r and 3g and the condition of having been formed in every 3b (each organic electroluminescence luminescence fields 5r and 5g, 5br) independently. Therefore, opening 8a -- The part by which opposite arrangement of a cathode 4 and the anodes 16 and 16 was carried out on both sides of the inner organic electroluminescence luminous layers 3r, 3g, and 3b Stripe-like organic electroluminescence luminescence field 5r, It is set to 5g and 5b, and sets to each organic electroluminescence luminescence fields 5r, 5g, and 5b. One independent cathode 4 is arranged along the die-length direction of the organic electroluminescence luminescence fields 5r, 5g, and 5b, and two or more anodes 16 and 16 are arranged so that it may intersect perpendicularly in the die-length direction of the organic electroluminescence luminescence fields 5r, 5g, and 5b mostly.

[0110] Moreover, opening 8a -- It sets from 8f [of inner narrow-width parts] -- to an other-end section side, and they are the stripe-like anodes 16 and 16 and each opening 8a. -- On both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b, opposite arrangement of the inner cathode 4 is carried out. on the other hand -- opening 8a-- it is in the condition of the cathode terminals 17r, 17g, and 17b of each opening 8a-- of every and the cathode 4 in opening 8a-- having lapped directly, and it having been arranged, and having connected with one edge side too hastily from 8f [of inner narrow-width parts] --. And opening 8a -- It sets inside and is 8f of narrow-width parts. -- Since there is no level difference etc. in a part, there is nothing of 8f [of narrow-width parts] -- that a cathode 4 disconnects in a part, and it is opening 8a. -- It is formed after the cathode 4 has flowed in one in the whole inside.

[0111] Therefore, opening 8a -- The cathode 4 and the cathode terminals 17r, 17g, and 17b of a part with which opposite arrangement is carried out and anodes 16 and 16 and a cathode 4 serve as the organic electroluminescence luminescence fields 5r, 5g, and 5b on both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b inside are in each organic electroluminescence luminescence fields 5r and 5g and the condition of having connected with every 5b. And the part to which one anode 16 laps with the organic electroluminescence luminescence fields 5r, 5g, and 5b of a lot which consist of three organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light to RGB is one pixel which emits light in three colors of RGB by considering as such a configuration. In each pixel, one scan electrode (anode 16) and three signal (data) electrodes (cathode 4 part of every opening 8a--) which became independent for every luminescent color are resembled. And more By deciding the brightness of each organic electroluminescence luminescence fields 5r, 5g, and 5b of RGB 3 color in 1 pixel, respectively, light can be emitted in the color of arbitration and a color picture can be displayed by emitting light in the color desired for every pixel.

[0112] And it enables it to connect with the exterior with each organic electroluminescence luminescence fields 5r and 5g and every 5b, without packing a cathode 4 for every luminescent color, and the fundamental configuration of this organic electroluminescence display can be easily manufactured like the organic electroluminescence luminescence equipment of each above-mentioned example while replacing the anode 11 of the fourth example with the anodes 16 and 16 which serve as a scan electrode of the shape of two or more stripe from a common field-like electrode. Moreover, in the same thing as the 3.8 inches organic electroluminescence luminescence equipment which indicated the pitch of each organic electroluminescence luminescence fields 5r, 5g, and 5b etc. to the first example, then the 3.8 inches display screen, the display of the high resolution whose pixel of horizontal:length is about 274x210 is possible.

[0113] In addition, in fact, although the organic electroluminescence display shown in drawing 11 is for explaining the outline of an organic electroluminescence display and shows the configuration only for 4 pixels, it becomes what many anodes 16 and 16 equipped with the pixel of a list and a large number in the lengthwise direction while many organic electroluminescence luminescence fields 5r, 5g, and 5b are located in a line with a longitudinal direction. Moreover, in case this organic electroluminescence display is driven, since the speed of response of an organic EL device is high-speed as mentioned above,

in each pixel, it is necessary to hold in the condition of having impressed the electrical potential difference between time amount extent for one frame, and the scan electrode-signal electrode.
[0114] Moreover, in the above-mentioned organic electroluminescence display, it changes into 8f [of narrow-width parts] --, is good for the location on the transparence substrate 1 corresponding to 8f [of these narrow-width parts] -- also as a thing of the fourth example which is smeared and forms a control layer 14, and good also as what connects the cathode terminals 17r, 17g, and 17b and a cathode 4 in the conductive paste layer 7 like the first example. However, in case a cathode 4 is connected with the cathode terminals 17r, 17g, and 17b in the conductive paste layer 7, it differs from the first example, and it is each opening 8a. -- It is necessary to connect a cathode 4 and the cathode terminals 17r, 17g, and 17b by one to one. Moreover, although the cathode 4 was used as the signal electrode by using anodes 16 and 16 as a scan electrode in the sixth example, it is good also as the reverse.
[0115]
[Effect of the Invention] Light can be emitted in high brightness in the color which is made to carry out color mixture of the luminescent color from the organic electroluminescence luminescence field of the shape of two or more stripe, and desires it, without nonluminescent transition reducing increase **** brightness by making the luminescent material which emits light in the color from which plurality differs intermingled, or carrying out a laminating according to the organic electroluminescence luminescence equipment of this invention according to claim 1. Therefore, when this organic electroluminescence luminescence equipment is used as a back light of LCD, it can consider as an efficient thing very more thinly than the back light which combined conventional fluorescence tubing and a conventional light guide plate. Therefore, the further thin shape of LCD can be planned. Moreover, by arranging an organic electroluminescence luminescence field in the shape of a stripe, as compared with the case where the shape of a mosaic and other conditions are made to distribute an organic electroluminescence luminescence field, a cathode, an anode, and an organic electroluminescence luminous layer can be formed very easily, and manufacture of organic electroluminescence luminescence equipment can be made easy.
[0116] Since according to the organic electroluminescence luminescence equipment of this invention according to claim 2 the class of organic electroluminescence luminescence field was made into three kinds and these luminescent color was made into the red who is the three primary colors of light, green, and blue in the configuration of the claim 1 above-mentioned publication It enables it to perform field-like luminescence of the white which carried out color mixture of red, green, and the blue by adjusting the brightness of the organic electroluminescence luminescence field of various kinds. Luminescence of the high brightness in a low power can be performed like a configuration according to claim 1, and it can use suitably as a back light of nonluminescent indicating equipments, such as LCD, especially a color, or a full color nonluminescent indicating equipment. Moreover, a high-speed response is possible for an organic EL device, and it can change turning on and off for red, green, and a blue organic electroluminescence luminescence field at high speed. Therefore, this organic electroluminescence luminescence equipment can be suitably used without a color filter by changing the display of red, green, and blue at high speed as a back light of field sequential full color LCD in which a full color display is possible.
[0117] According to the organic electroluminescence luminescence equipment of this invention according to claim 3, the class of organic electroluminescence luminescence field can be reduced as compared with the configuration of the claim 2 above-mentioned publication, and light can be emitted in the shape of a white field with a easier configuration.
[0118] According to the organic electroluminescence luminescence equipment of this invention according to claim 4, a color can be adjusted by the independent thing for which an organic electroluminescence luminescence field is driven for every electrode. Moreover, when using for the electrochromatic display which has a color filter as a back light, the brightness of luminescence which penetrates the color filter of each color can be adjusted, and the color balance of color display can be adjusted. Moreover, in organic electroluminescence luminescence equipment, in performing luminescence of those other than white, it becomes possible to adjust the brightness of the organic

electroluminescence luminescence field of each color, and to emit light in the color of arbitration. Moreover, it can use as a back light of LCD which displays a field sequential method by carrying out sequential turning on and off of the organic electroluminescence luminescence field of the various kinds which emit light in red, green, and blue as mentioned above.

[0119] According to the organic electroluminescence luminescence equipment of this invention according to claim 5, the same operation effectiveness as a configuration according to claim 4 can be acquired. According to the organic electroluminescence luminescence equipment of this invention according to claim 6, the same operation effectiveness as a configuration according to claim 4 can be acquired.

[0120] According to the organic electroluminescence luminescence equipment of this invention according to claim 7, in the phase of manufacture of organic electroluminescence luminescence equipment, it can decide by adjusting the area of each organic electroluminescence luminescence field which emits light in each color in the color of the luminescent color to which color mixture of [at the time of the electrical potential difference and current beforehand set as each organic electroluminescence luminescence field being impressed] was carried out.

[0121] Since according to the organic electroluminescence display of this invention according to claim 8 it is arranged across the stripe-like organic electroluminescence luminescence field so that a stripe-like anode and a stripe-like cathode may cross mutually, the spontaneous light display in which a dot-matrix display is possible can be easily manufactured by low cost by using one electrode as a signal electrode and driving the electrode of another side as a scan electrode.

[Translation done.]

* NOTICES *

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TECHNICAL FIELD

[Field of the Invention] This invention relates to organic electroluminescence luminescence equipment suitable as a back light of non-spontaneous light indicating equipments, such as a liquid crystal display (LCD), and an organic electroluminescence indicating equipment especially with respect to the organic electroluminescence luminescence equipment which performs field-like luminescence using an organic EL device.

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PRIOR ART

[Description of the Prior Art] Conventionally, what combined fluorescence tubing and a light guide plate as a source of the flat-surface white light of the back light for LCD, flat-surface fluorescence tubing, etc. are used. When obtaining white luminescence, compared with solid-state light emitting devices, such as EL light emitting device, the fluorescence tubing using luminescence from a gaseous phase is more advantageous, and fluorescence tubing is used for much LCD. However, with the combination of the fluorescence tubing and the light guide plate (or reflecting plate) which are used as a common back light, and flat-surface fluorescence tubing, the further thin-shape-izing was difficult. That is, while a limitation is to make fluorescence tubing thin (thinly), when obtaining the most uniform possible field-like luminescence, there is a limitation also in thin shape-ization of a light guide plate.
[0003] Then, in some small liquid crystal displays (LCD), there are some which use the EL element (electroluminescent element) as a back light, and thin shape-ization of LCD which has a back light can be attained by using a thin EL element as a field-like illuminant for back lights. Moreover, since a back plate functions as a reflector, an EL element can usually use LCD in both a reflective mold and a transparency mold, for example. However, the back light using the EL element currently produced commercially in the present condition was what has colors, such as green, rather than was white.
[0004] From these things, the white light emitting device using the EL element as a back light for LCD is examined. Moreover, as an EL element, although the inorganic EL element and the organic EL device are known, in luminous efficiency, the direction of an organic EL device is excellent, and development of the field-like emitter which emits light in the white light with an organic EL device is performed. Moreover, when an electrical potential difference is impressed, a current flows, and an organic electroluminescence light emitting device is driven by the direct current. In addition, an organic EL device carries out the laminating of the transparent electrode (anode plate) which consists of an indium-stannic-acid ghost (ITO) for example, on a glass substrate, the organic electroluminescence luminous layer which consists of a hole transportation layer, a luminous layer, an electronic transportation layer, etc., and the back plate (cathode) which consists of a metal of a low work function.
[0005] And the hole poured in from the transparent electrode and the electron poured in from the back plate recombine luminescence of an organic EL device by the organic electroluminescence luminous layer, and it takes place by exciting the fluorochrome which is an emission center. In addition, there is a thing of the two-layer structure other than the 3 above layer structures in an organic electroluminescence luminous layer. Moreover, an organic electroluminescence light emitting device can manufacture a spontaneous light indicating equipment using an organic electroluminescence light emitting device it is not only used as a back light of non-spontaneous light indicating equipments, such as LCD, but, and development of the indicating equipment using an organic electroluminescence light emitting device is also performed.

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EFFECT OF THE INVENTION

[Effect of the Invention] Light can be emitted in high brightness in the color which is made to carry out color mixture of the luminescent color from the organic electroluminescence luminescence field of the shape of two or more stripe, and desires it, without nonluminescent transition reducing increase **** brightness by making the luminescent material which emits light in the color from which plurality differs intermingled, or carrying out a laminating according to the organic electroluminescence luminescence equipment of this invention according to claim 1. Therefore, when this organic electroluminescence luminescence equipment is used as a back light of LCD, it can consider as an efficient thing very more thinly than the back light which combined conventional fluorescence tubing and a conventional light guide plate. Therefore, the further thin shape of LCD can be planned. Moreover, by arranging an organic electroluminescence luminescence field in the shape of a stripe, as compared with the case where the shape of a mosaic and other conditions are made to distribute an organic electroluminescence luminescence field, a cathode, an anode, and an organic electroluminescence luminous layer can be formed very easily, and manufacture of organic electroluminescence luminescence equipment can be made easy.
[0116] Since according to the organic electroluminescence luminescence equipment of this invention according to claim 2 the class of organic electroluminescence luminescence field was made into three kinds and these luminescent color was made into the red who is the three primary colors of light, green, and blue in the configuration of the claim 1 above-mentioned publication It enables it to perform field-like luminescence of the white which carried out color mixture of red, green, and the blue by adjusting the brightness of the organic electroluminescence luminescence field of various kinds. Luminescence of the high brightness in a low power can be performed like a configuration according to claim 1, and it can use suitably as a back light of nonluminescent indicating equipments, such as LCD, especially a color, or a full color nonluminescent indicating equipment. Moreover, a high-speed response is possible for an organic EL device, and it can change turning on and off for red, green, and a blue organic electroluminescence luminescence field at high speed. Therefore, this organic electroluminescence luminescence equipment can be suitably used without a color filter by changing the display of red, green, and blue at high speed as a back light of field sequential full color LCD in which a full color display is possible.
[0117] According to the organic electroluminescence luminescence equipment of this invention according to claim 3, the class of organic electroluminescence luminescence field can be reduced as compared with the configuration of the claim 2 above-mentioned publication, and light can be emitted in the shape of a white field with a easier configuration.
[0118] According to the organic electroluminescence luminescence equipment of this invention according to claim 4, a color can be adjusted by the independent thing for which an organic electroluminescence luminescence field is driven for every electrode. Moreover, when using for the electrochromatic display which has a color filter as a back light, the brightness of luminescence which penetrates the color filter of each color can be adjusted, and the color balance of color display can be adjusted. Moreover, in organic electroluminescence luminescence equipment, in performing

luminescence of those other than white, it becomes possible to adjust the brightness of the organic electroluminescence luminescence field of each color, and to emit light in the color of arbitration. Moreover, it can use as a back light of LCD which displays a field sequential method by carrying out sequential turning on and off of the organic electroluminescence luminescence field of the various kinds which emit light in red, green, and blue as mentioned above.

[0119] According to the organic electroluminescence luminescence equipment of this invention according to claim 5, the same operation effectiveness as a configuration according to claim 4 can be acquired. According to the organic electroluminescence luminescence equipment of this invention according to claim 6, the same operation effectiveness as a configuration according to claim 4 can be acquired.

[0120] According to the organic electroluminescence luminescence equipment of this invention according to claim 7, in the phase of manufacture of organic electroluminescence luminescence equipment, it can decide by adjusting the area of each organic electroluminescence luminescence field which emits light in each color in the color of the luminescent color to which color mixture of [at the time of the electrical potential difference and current beforehand set as each organic electroluminescence luminescence field being impressed] was carried out.

[0121] Since according to the organic electroluminescence display of this invention according to claim 8 it is arranged across the stripe-like organic electroluminescence luminescence field so that a stripe-like anode and a stripe-like cathode may cross mutually, the spontaneous light display in which a dot-matrix display is possible can be easily manufactured by low cost by using one electrode as a signal electrode and driving the electrode of another side as a scan electrode.

[Translation done.]

* NOTICES *

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] By the way, although the luminescent color of an organic EL device is fundamentally decided by classes, such as luminescent material, for example, an above-mentioned fluorochrome etc., the luminescent material of the single kind which emits light in white in the present condition was not known, but in order to obtain white luminescence in an organic EL device, it has obtained white luminescence by making two or more luminescent material intermingled. That is, it is in forming the luminous layer of one layer in the condition of, for example, having mixed each luminescent material which emits light in red, green, blue (RGB), etc. **** (). After introducing each dopant of RGB into a luminous layer or vapor-depositing two or more luminous layers, respectively, patterning is carried out separately, respectively and it divides superficially. Or emit light to coincidence or When forming a luminous layer, white luminescence had been obtained because the laminating of the layer containing each luminescent material which emits light in red, green, blue, etc. is made to be carried out.
[0007] However, in the organic EL device of the structure which carries out the laminating of the layer containing the organic EL device which two or more luminescent material was made intermingled in this way, and was formed, or two or more luminescent material, the nonluminescent transition in an organic electroluminescence layer increases, and the efficient component is not obtained in the present condition. That is, as compared with the usual organic EL device which contains one kind of luminescent material, without making two or more luminescent material intermingled, in the same power consumption, brightness is low and the organic EL device which emits light in the above whites was that of a potato. Therefore, the organic EL device which carries out white luminescence is in a condition with difficult utilization by lack of brightness and the reasons of high power consumption etc. Moreover, in the organic EL device divided superficially, the number of luminous layer patterning processes needed to increase, in order to form in fine white moreover, color mixture of two or more colors fully had to be carried out, and the pitch of the field which makes small area of the field of each of the luminous layers of each color for this reason, and adjoins needed to be made small. However, when photolithography performed such patterning, the luminous layer itself might deteriorate and it might have the bad influence on the electrode. Moreover, even if vapor-deposited using the metal mask, it was not able to form in a high definition pitch. It was difficult to, develop a low cost spontaneous light display with the easiest possible configuration on the other hand, although what various attempts are made in development of the spontaneous light display using an organic EL device, and was colorized using the color filter, the thing which expresses a color using the organic EL device of a class with which two or more colors differ are developed.
[0008] While aiming at offering the organic electroluminescence luminescence equipment which this invention can be made in view of the above-mentioned situation, and can use it as a precise field-like emitter which carries out white luminescence, and can realize high brightness with a low power, it aims at offering the organic electroluminescence luminescence equipment in which color display is possible, and an organic electroluminescence display with the easiest possible configuration.

[Translation done.]

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MEANS

[Means for Solving the Problem] The organic electroluminescence luminescence equipment of this invention according to claim 1 is characterized by emitting light in the shape of a field with the luminescent color which has arranged two or more sorts of organic electroluminescence luminescence fields which emit light in a color different, respectively in the shape of a stripe on a transparence substrate, and mixed the different luminescent color.
[0010] Since two or more sorts of organic electroluminescence luminescence fields which emit light in a different color are arranged in the shape of a stripe on a transparence substrate according to the above-mentioned configuration, each organic electroluminescence luminescence field serves as a line (band-like) mostly. And when each organic electroluminescence luminescence field emits light, each organic electroluminescence luminescence field serves as a linear light source mostly, and it will lap with luminescence which spreads from other organic electroluminescence luminescence fields where light had been arranged band-like at breadth and has been arranged in the shape of a stripe in near as it separates from each organic electroluminescence luminescence field. And when it is the color from which the light which lapped in this way differs, light will be emitted by the color with which the light of a different color was mixed. Therefore, when two or more sorts of organic electroluminescence luminescence fields where the luminescent color differs have been arranged in the shape of a stripe on a transparence substrate as mentioned above, it can check by looking as a condition which emitted light in the shape of a field by the color with which two or more sorts of luminescent color was mixed in the location distant to some extent from the part by which the organic electroluminescence luminescence field has been arranged in the shape of a stripe. In addition, in order to obtain luminescence of almost uniform color mixture, the organic electroluminescence luminescence field which emits light in a different color to the distance (distance to the display illuminated when using it as a back light) which the distance between each stripe (each organic electroluminescence luminescence field) checks by looking while it is fully narrow needs to be distributing mutually.
[0011] and luminescence of the color to which color mixture of the luminescent color of the organic electroluminescence luminescence field of each color was carried out in this way in the organic electroluminescence luminescence field which emits light in each color as compared with the thing which there is no need of using two or more luminescent material, and contains one kind of luminescent material (fluorochrome), then the case where two or more conventional luminescent material is made intermingled, respectively since it was good -- a low power -- high -- it can consider as a brightness thing. Therefore, if the color and brightness of each organic electroluminescence luminescence field are decided that color mixture becomes white, the back light which performs field-like luminescence of the white of the high brightness in a low power can be manufactured. moreover, the color of the arbitration which mixed two or more colors even if it was except white -- emitting light -- and a low power -- high -- a brightness field-like emitter can be obtained. Moreover, as compared with other configurations which obtain color mixture from two or more organic electroluminescence luminescence fields, the manufacture can be easily performed by arranging the organic electroluminescence luminescence field which emits light in each color in the shape of a stripe (for example, when two or more sorts of organic

electroluminescence luminescence fields where the luminescent color differs are arranged in the shape of a mosaic, or it is made to distribute finely as the shape of a small field and each organic electroluminescence luminescence field has been arranged etc.).
[0012] Moreover, by changing every organic electroluminescence luminescence field and the power applied for every organic electroluminescence luminescence field of each luminescent color Although it is necessary to consider as the configuration which can impress an electrical potential difference independently for every organic electroluminescence luminescence field and every organic electroluminescence luminescence field of each luminescent color when considering as a configuration which adjusts the color of luminescence by which changed brightness and color mixture was carried out for every luminescent color It compares, when each organic electroluminescence luminescence field is arranged in the shape of a mosaic by arranging each organic electroluminescence luminescence field in the shape of a stripe, or it distributes finely and each organic electroluminescence luminescence field has been arranged. It can consider as the configuration which makes the minimum the outgoing line for supplying power to each organic electroluminescence luminescence field etc., and can impress an electrical potential difference independently for every organic electroluminescence luminescence field very easily. Moreover, when the power applied for every organic electroluminescence luminescence field or organic electroluminescence luminescence field of each luminescent color is changed, three kinds which can emit light in various colors, for example, double the class of organic electroluminescence luminescence field with the three primary colors of a color, and emit light in each color of red, green, and blue with one organic electroluminescence luminescence equipment, then almost full color luminescence can be performed.
[0013] Moreover, since the back plate which an organic EL device is formed as mentioned above on transparence substrates, such as a glass substrate and a bright film substrate (transparence resin substrate), is more specifically opaque in an organic EL device, and has metallic luster functions as a reflecting plate, luminescence from an organic electroluminescence layer will penetrate a transparent electrode and a transparence substrate, and will be emitted to the front-face (field where field in which organic EL device was formed is opposite) side of a transparence substrate. Therefore, the light from the organic electroluminescence luminescence field of each color formed in the shape of a stripe on the transparence substrate will be in the condition that the light of the luminescent color by which carried out color mixture within the transparence substrate fundamentally, and color mixture was carried out to the front-face side of a transparence substrate was emitted in the shape of a field. in addition -- for carrying out color mixture within a transparence substrate -- the thickness of a transparence substrate, and spacing (the width of face of each organic electroluminescence luminescence field --) of each organic electroluminescence luminescence fields It is necessary to adjust spacing between each organic electroluminescence luminescence fields etc. in consideration of the refractive index of a transparence substrate etc., and if the thickness of a transparence substrate is thin When it is necessary to narrow spacing of each organic electroluminescence luminescence fields and the thin shape of organic electroluminescence luminescence equipment is planned, it is desirable to make a stripe-like organic electroluminescence luminescence field thin.
[0014] Moreover, each organic electroluminescence luminescence field is formed in the shape of a stripe on a transparence substrate as mentioned above, and the above organic electroluminescence luminous layers are formed together with between a cathode and anodes mutual almost in parallel with band-like (when spacing of organic electroluminescence luminescence fields is narrow, it is a line mostly) on a transparence substrate. Moreover, if the electrical potential difference and current impressed for every organic electroluminescence luminescence field in this case are not changed, a cathode and an anode shall be formed in the whole surface of the part into which a transparence substrate emits light in the shape of a field. Moreover, if either [at least] a cathode or an anode is formed in the condition of having become independent in the shape of a stripe, along each organic electroluminescence luminescence field so that it may lap with each organic electroluminescence luminescence field, it can consider as the configuration which can change the electrical potential difference and current impressed for every organic electroluminescence luminescence field.

[0015] Moreover, it is usable also as a back light of field sequential full color LCD which needs to change the brightness of each organic electroluminescence luminescence field while using [such a configuration, then] organic electroluminescence luminescence equipment, can change the luminescent color, for example, needs to change the color of a back light for every field of each color (RGB). In this case, that electrostatic capacity of an organic EL device is very small, and it can be switched at high speed, and since it can change luminescence of each color of RGB to a high speed, in order to raise effectiveness, it serves as the optimal, very thin back light for field sequential full color LCD as compared with fluorescence tubing which used the fluorescence material which has afterglow nature.
[0016] Moreover, although the above-mentioned organic electroluminescence luminescence field is an organic EL device fundamentally, it is not necessary to have a cathode and an anode according to an individual for every organic electroluminescence luminescence field as mentioned above, and the organic electroluminescence luminous layer arranged between a cathode and an anode at least should just be arranged in the shape of a stripe. Therefore, an organic electroluminescence luminescence field consists of a part corresponding to a stripe-like organic electroluminescence luminous layer and the organic electroluminescence luminous layer of the shape of a stripe of a cathode and an anode.
[0017] Moreover, although the organic electroluminescence luminescence field of the various kinds which emit light in a different color in the above-mentioned organic electroluminescence luminescence field contains a well-known luminescent material, respectively and has the luminescent color based on this luminescent material, as for each organic electroluminescence luminescence field, it is desirable that one kind of luminescent material for obtaining the luminescent color of each organic electroluminescence luminescence field is included, and it is desirable that the luminescent material from which a class differs in one organic electroluminescence luminescence field more than high impurity concentration is not contained. That is, it is made for one kind of luminescent material which is different for every organic electroluminescence luminescence field of various kinds, respectively to be included, and it is necessary to make it not be in the condition that as two or more luminescent material as possible was intermingled to one organic electroluminescence luminescence field, when attaining a low power and high brightness, since the fall of brightness and the rise of power consumption will be caused like before when two or more luminescent material is made intermingled.
[0018] Moreover, it is desirable that it faces to arrange the organic electroluminescence luminescence field of various kinds in the shape of a stripe, and the color in each location of the luminescence side of organic electroluminescence luminescence equipment will be in the condition of having carried out color mixture to the almost same color, and it is desirable that it is in the condition that distribution of the organic electroluminescence luminescence field in every kind of two or more sorts of organic electroluminescence luminescence fields is almost the same. That is, as for the same organic electroluminescence luminescence field of a class, being arranged at almost fixed spacing is desirable, and it is desirable that many organic electroluminescence luminescence fields of a lot including every one organic electroluminescence luminescence field of various kinds are arranged in the shape of a group stripe.
[0019] The organic electroluminescence luminescence equipment of this invention according to claim 2 is characterized by arranging three sorts of organic electroluminescence luminescence fields which emit light in red, green, and blue, respectively in the shape of a stripe on a transparence substrate, carrying out color mixture of the different luminescent color, and emitting light in the shape of a white field in organic electroluminescence luminescence equipment according to claim 1.
[0020] Since according to the above-mentioned configuration the class of organic electroluminescence luminescence field was made into three kinds and these luminescent color was made into the red who is the three primary colors of light, green, and blue in the configuration of the claim 1 above-mentioned publication It enables it to perform field-like luminescence of the white which carried out color mixture of red, green, and the blue by adjusting the brightness of the organic electroluminescence luminescence field of various kinds. Luminescence of the high brightness in a low power can be performed like a configuration according to claim 1, and it can use suitably as a back light of nonluminescent indicating equipments, such as LCD, especially a color, or a full color nonluminescent indicating equipment. In

addition, also in organic electroluminescence luminescence equipment according to claim 2, it becomes it is good also as what changes the power applied for every organic electroluminescence luminescence field and every organic electroluminescence luminescence field of each luminescent color, for example, and can change the luminescent color, and possible to perform such a configuration, then adjustment of a whiteness degree. Moreover, it can use suitably as a back light of field sequential full color LCD as mentioned above. In addition, in full color LCD except field sequential, since a color filter is generally used, it is desirable to adjust the brightness of the organic electroluminescence luminescence field of each color corresponding to the amount of transparency of the light of the color filter of each color.

[0021] In organic electroluminescence luminescence equipment according to claim 1, one [at least] luminescence wavelength field of the organic electroluminescence luminescence equipment of this invention according to claim 3 is large, and it is characterized by to emit light in the shape of a white field by carrying out color mixture of the light of a different color which arranges two sorts of organic electroluminescence luminescence fields which emit light in a color different, respectively in the shape of a stripe on a transparence substrate, and emits light from two sorts of organic electroluminescence luminescence fields, respectively.

[0022] According to the above-mentioned configuration, the class of organic electroluminescence luminescence field can be reduced as compared with the configuration of the claim 2 above-mentioned publication, and light can be emitted in the shape of a white field with a easier configuration. In addition, although an organic EL device will emit light in a specific color by the luminescent material contained, the wavelength of the light of luminescence in this case has a certain amount of wavelength width of face. And in a well-known luminescent material, when it uses for an organic EL device, that to which the wavelength width of face of luminescence emits light in orange over the wavelength near green from the wavelength near red, the thing to which the wavelength width of face of luminescence emits light in bluish green over the wavelength near blue from the wavelength near green are known. When the organic electroluminescence luminescence field which emits light in such orange, and the organic electroluminescence luminescence field which emits light in bluish green have been arranged by turns for example, in the shape of a stripe, it is possible by adjusting the brightness of each organic electroluminescence luminescence field to carry out color mixture of the bluish green to orange, and to obtain white luminescence. That is, there is what has the large wavelength width of face of luminescence in an organic electroluminescence light emitting device, and it is possible to perform luminescence which occupies many of wavelength fields of the light, i.e., luminescence which can be mostly checked by looking in white, only by combining these [two], and it is not necessary to necessarily arrange three kinds of organic electroluminescence luminescence fields which shine to red, green, and blue three primary colors, respectively.

[0023] In addition, the luminescent color of two sorts of each organic electroluminescence luminescence fields should just be a color which can perform luminescence which can be mostly recognized to be white with the combination of two sorts of luminescent color. Therefore, the wavelength width of face of luminescence of one organic electroluminescence luminescence field is comparatively wide, and it is good, if white can be expressed when the wavelength width of face of luminescence of the organic electroluminescence luminescence field of another side carries out color mixture also in the combination which became comparatively narrow. Moreover, when using this organic electroluminescence luminescence equipment for the electrochromatic display which has a color filter as a back light, it is desirable that permeability contains somewhat many light of high wavelength in luminescence which carried out color mixture of the luminescent color of two sorts of organic electroluminescence luminescence fields with the color filter of each color.

[0024] The organic electroluminescence luminescence equipment of this invention according to claim 4 In the organic electroluminescence luminescence equipment of any one publication of three from claim 1 So that the current and electrical potential difference which emits light in every organic electroluminescence luminescence field and the same color and which is impressed for every organic electroluminescence luminescence field may be adjusted and brightness can be adjusted It is characterized by making into the independent structure either [at least] the cathode electrode which

impresses an electrical potential difference to this organic electroluminescence luminescence field, or an anode electrode for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color.

[0025] When according to the above-mentioned configuration emitting light in white like a configuration according to claim 2 or 3 so that it may be used as a back light of a non-spontaneous light indicating equipment, a color can be adjusted so that it may become luminescence of the suitable color for a non-spontaneous light indicating equipment. Moreover, when using for the electrochromatic display which has a color filter as a back light, the brightness of luminescence which penetrates the color filter of each color can be adjusted, and the color balance of color display can be adjusted. Moreover, in organic electroluminescence luminescence equipment, in performing luminescence of those other than white, it becomes possible to adjust the brightness of the organic electroluminescence luminescence field of each color, and to emit light in the color of arbitration. Moreover, it can use as a back light of LCD which displays a field sequential method by carrying out sequential turning on and off of the organic electroluminescence luminescence field of the various kinds which emit light in red, green, and blue as mentioned above.

[0026] In organic electroluminescence luminescence equipment according to claim 4, the organic electroluminescence luminescence equipment of this invention according to claim 5 is characterized by considering as the common electrode to which the cathode electrode of each organic electroluminescence luminescence field was connected mutually while it makes the above-mentioned anode electrode the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color.

[0027] Since the anode electrode is made into the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color according to the above-mentioned configuration, it becomes possible turning on and off of a current, and to change the electrical potential difference and current to impress for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color, and the same operation effectiveness as a configuration according to claim 4 can be acquired.

[0028] In organic electroluminescence luminescence equipment according to claim 4, the organic electroluminescence luminescence equipment of this invention according to claim 6 is characterized by considering as the common electrode to which the anode electrode of each organic electroluminescence luminescence field was connected mutually while it makes the above-mentioned cathode electrode the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color.

[0029] Since the cathode electrode is made into the structure which became independent for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color according to the above-mentioned configuration, it becomes possible turning on and off of a current, and to change the electrical potential difference and current to impress for every organic electroluminescence luminescence field which emits light in every organic electroluminescence luminescence field and the same color, and the same operation effectiveness as a configuration according to claim 4 can be acquired.

[0030] The organic electroluminescence luminescence equipment of this invention according to claim 7 is characterized by adjusting the luminescent color by adjusting the area of the organic electroluminescence luminescence field which emits light in each color in the organic electroluminescence luminescence equipment of any one publication of six from claim 1.

[0031] Even if it does not adjust the electrical potential difference and current impressed to each organic electroluminescence luminescence field by adjusting the area of the organic electroluminescence luminescence field which emits light in each color according to the above-mentioned configuration, adjustment of the luminescent color is possible. That is, in the phase of manufacture of organic electroluminescence luminescence equipment, the luminescent color by which color mixture was carried

out can be decided by deciding the area of each organic electroluminescence luminescence field which emits light in each color corresponding to each brightness. Therefore, even if it does not have the composition that the electrical potential difference and current to impress are changed, for every organic electroluminescence luminescence field which emits light in the same color, and every organic electroluminescence luminescence field (as what is driven with an anode and a cathode for example, with each common organic electroluminescence luminescence field), in a manufacture phase, the luminescent color can be decided easily. In addition, even if it has the above composition, it is good also as possible in adjustment of a color after manufacture as a configuration which changes the electrical potential difference and current to impress for every organic electroluminescence luminescence field which emits light in the still more nearly same color, and every organic electroluminescence luminescence field.

[0032] The organic electroluminescence display of this invention according to claim 8 Three sorts of organic electroluminescence luminescence fields which emit light in red, green, and blue, respectively are arranged in the shape of a stripe on a transparence substrate. And one electrode of the cathode electrode which makes a charge impress to the above-mentioned organic electroluminescence luminescence field, and the anode electrodes It is characterized by having met in the die-length direction of each organic electroluminescence luminescence field, having arranged in the shape of a stripe so that it may lap with each organic electroluminescence luminescence field, and having arranged the electrode of another side in the shape of a stripe so that each organic electroluminescence luminescence field may be intersected.

[0033] Since according to the above-mentioned configuration it is arranged so that a stripe-like anode and a stripe-like cathode may cross mutually, a dot-matrix display is attained by using one side as a signal electrode and driving another side as a scan electrode. Moreover, each organic electroluminescence luminescence field arranged in the shape of a stripe shall be arranged so that RGB may repeat three colors at a time. If the electrode arranged by lapping is used as a signal electrode so that each organic electroluminescence luminescence field may be met, and the electrode which intersects perpendicularly with this signal electrode and is arranged in the shape of a stripe is used as a scan electrode It becomes possible to perform color display, using as 1 pixel a part for the intersection of one scan electrode and three organic electroluminescence luminescence fields which emit light in each color of RGB and which adjoined each other mutually.

[0034] or [and / meeting subsequently to this ITO by forming ITO in the shape of a stripe on a transparence substrate, in case the organic electroluminescence display in which such color display is possible is manufactured] -- or an organic electroluminescence luminescence field is formed in the shape of a stripe so that it may intersect perpendicularly, a configuration is [that what is necessary is just to form a stripe-like back plate] simple so that stripe-like ITO may be intersected, and it can manufacture easily by low cost.

[0035]

[Embodiment of the Invention] Below, the organic electroluminescence luminescence equipment of the first example of the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 (A), drawing 1 (B), and drawing 1 (C) illustrate the minimum component of organic electroluminescence luminescence equipment, in order to explain the fundamental concept of the organic electroluminescence luminescence equipment of the first example. In addition, drawing 1 (B) is the A-A' line sectional view of drawing 1 (A), and drawing 1 (C) is the B-B' line sectional view of drawing 1 (A).

[0036] As shown in drawing 1 (A), (B), and (C), the organic electroluminescence luminescence equipment of the first example On the transparence substrate 1 (for example, glass substrate), the cathode terminal 6 which estranges electrically with anode 2 -- and anode 2-- which consist stripe-like (almost parallel that it is beltlike and mutually) of three ITO(s) (transparent electrode), and becomes with the same ingredient as anode 2 -- is formed. The transparence substrate 1 top and anode 2 -- Upwards, the septum resist 8 which the center of an anode 2 becomes from the insulating material equipped with opening 8a by which opening is carried out is formed. Anode 2 exposed by opening 8a in

alignment with this anode 2 -- -- The stripe-like organic electroluminescence luminescence fields 5r, 5g, and 5b were formed upwards, and one cathode 4 which is the back plate which has the well-known ingredient of a low work function has accumulated on the transparence substrate 1 of a periphery on the upper septum resist 8 of them at the list according to each level difference. And one organic electroluminescence luminescence field (5r, 5g, 5b) which functions as one organic EL device from the part which laps with one organic electroluminescence luminous layer (3r, 3g, 3b) which laps with one anode 2 and this anode 2, and the one above-mentioned organic electroluminescence luminous layer in a cathode 4 (3r, 3g, 3b) is formed. Thereby, three organic electroluminescence luminescence fields 5r, 5g, and 5b are formed in the organic electroluminescence luminescence equipment shown in drawing 1 (A) in the shape of a stripe. In addition, in drawing 1 (A), the organic electroluminescence luminous layers 3r, 3g, and 3b, the cathode 4, and the conductive paste layer 7 mentioned later are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid.

[0037] Above-mentioned anode 2 -- is the anode 2 with which the edge of one of these is formed in the condition of having extended further previously, and has not lapped with the organic electroluminescence luminous layers 3r, 3g, and 3b from one edge side of the organic electroluminescence luminous layers 3r, 3g, and 3b. -- One edge is anode terminal 2a-- of each organic electroluminescence luminescence fields 5r, 5g, and 5b. The above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b consist of three layers, the electron hole transportation layer from an anode side, a luminous layer, and an electronic transportation layer, as mentioned above, for example.

[0038] In addition, in the first example, in forming the organic electroluminescence luminous layers 3r, 3g, and 3b, where patterning is carried out by vacuum evaporationo, the organic electroluminescence luminous layers 3r, 3g, and 3b shall not be formed, but the organic electroluminescence luminous layers 3r, 3g, and 3b shall be formed by wet spreading. And as a luminescent material used for the organic electroluminescence luminous layers 3r and 3g and the luminous layer in 3b, there are a low-molecular system and a macromolecule system, and when forming the organic electroluminescence luminous layers 3r, 3g, and 3b by wet spreading, a macromolecule system ingredient will be used as an ingredient of a luminous layer, for example.

[0039] And as the above-mentioned giant-molecule system ingredient, the poly carbazole, poly para-phenylene, the poly arylene vinylene, the poly thiophene, the poly fluorene, polysilane, polyacethylene, the poly aniline, the poly pyridine, the poly pyridine vinylene, and polypyrrole are mentioned. Moreover, as polymeric materials, the polymer of the monomer which forms the above-mentioned polymeric materials (polymer), the polymer and copolymer of oligomer, a monomer, or the induction object of oligomer and a copolymer, and the polymer and copolymer that carried out the polymerization of the monomer which has oxazole (oxane diazole, triazole, diazole) or a triphenylamine frame can be mentioned. Moreover, as a monomer of these polymers, an above-mentioned compound is formed by giving heat, **, UV, an electron ray, etc., and a ** monomer and a precursor polymer are included. Moreover, the non-conjugated-system unit which combines between these monomers may be introduced.

[0040] As concrete goods of polymeric materials, PORIPI nil carbazole:Tokyo Chemicals, PORITODE sill thiophene : Rieke, polyethylene dioxythiophene, PSS (polystyrene sulfonic acid) dispersing element denaturation object cpp105 : [Nagase,] Pori 9, 9-dialkyl fluorene, Pori (thienylene -9, 9-dialkyl fluorene), Pori (2, 5-dialkyl PARAFENIREN-thienylene), a :(dialkyl: R=C1 - C20) DOW chemical company, PPV; poly para-phenylene vinylene, MEH-PPV; Pori (2-methoxy -5 -(2'-ethyl-HEKISHIROKISHI)- PARAFENIREMBINIREN), MMP-PPV; Pori (2-methoxy -5 -(2'-ethyl-cutting-pliers ROKISHI)- PARAFENIREMBINIREN), PDMPV Pori (2, 5-dimethyl-PARAFENIREMBINIREN), PTV; Pori (2, 5-thienylene vinylene), PDMOPV; Pori (2, 5-JIMETOKISHIPARA phenylenevinylene), and CN-PPV; Pori (1, 4-PARAFENIRENSHIANO vinylene):CDT is mentioned.

[0041] Moreover, the ingredient of the luminous layer in which wet spreading is possible is good also as

what is not restricted to a macromolecule system ingredient, carries out polymer distribution and uses a low-molecular ingredient. Moreover, it is good also as what uses a low-molecular ingredient in the condition of having melted to the solvent depending on the property of a low-molecular ingredient, carrying out wet spreading. And as a polymer at the time of carrying out polymer distribution of the low-molecular ingredient, the various polymers containing a well-known general-purpose polymer can be used according to a situation. and as a low-molecular luminescent material (photogene or dopant) An anthracene, naphthalene, a phenanthrene, a pyrene, tetracene, Coronene, a chrysene, a fluorescein, perylene, phtalo perylene, Non [naphthalo perylene and peri non, / phtalo peri non, / naphthalo peri] A diphenyl butadiene, a tetra-phenyl butadiene, a coumarin, OKISA diazole, Aldazine, bis-benzoKIZORIN, bis-styryl, pyrazine, an oxine, An amino quinoline, an imine, diphenylethylene, a vinyl anthracene, A diamino carbazole, a pyran, thiopyran, poly methine, merocyanine, 4-dicyanomethylene-4H-pyrans, such as an imidazole chelation oxy-NOIDO compound, and 4-dicyanomethylene-4H-thiopyran, diketone, chlorin system compounds, and these derivatives are mentioned.

[0042] and -- as the concrete goods used as a low-molecular luminescent material -- Alq3 and Quinacridone: -- said -- Renhua -- a study lab, the Almq3(derivative of aluminum quinolinol complex):Chemiprokasei coumarin 6, a DCM:bitter taste loss company, RUMOGEN F:Yamamoto commerce, etc. are mentioned. In addition, luminescent material should just be an ingredient which it is not limited to an above-mentioned thing and can form the organic electroluminescence luminous layers 3r, 3g, and 3b by spreading.

[0043] While the above-mentioned cathode 4 is formed in the shape of a field on each organic electroluminescence luminous layers 3r and 3g and 3b of one thickness of each organic electroluminescence luminous layers 3r, 3g, and 3b, and the level difference produced since anode 2 -- is thicker than thickness and the sum, it dissociates mutually, but since the conductive paste layer 7 connects mutually, the septum resist 8 is same electric potential substantially.

[0044] And in the organic electroluminescence luminescence equipment of the first example, the cathode terminal 6 is formed in the location which is the other-end section side of the organic electroluminescence luminous layers 3r, 3g, and 3b on the transparence substrate 1, and was estranged from these organic electroluminescence luminous layers 3r, 3g, and 3b and anode 2 --, and it connects with the conductive paste layer 7. The cathode terminal 6 is connected with an external circuit, and the predetermined electrical potential difference is supplied.

[0045] Since it is sufficiently thicker than the thickness of the septum resist 8, the conductive paste layer 7 is formed so that it may lap with some cathode terminals 6, while lapping with the part (opening 8a of the septum resist 8 -- part) of the other-end section of all the organic electroluminescence luminous layers 3r, 3g, and 3b. In addition, the conductive paste layer 7 coats conductive pastes, such as well-known silver, and is formed.

[0046] In addition, in the first example, it is in the condition that anode 2 -- is not formed in the bottom of the other-end section which laps with the conductive paste layer 7 of the organic electroluminescence luminous layers 3r, 3g, and 3b. This shall not prepare anode 2 -- in the part in which the conductive paste layer 7 is formed, in order to aim at improvement in the yield with the pressure also in consideration of possibility that a cathode 4 will connect with anode 2 -- by which opposite arrangement is carried out on both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b too hastily being slight, in case the conductive paste layer 7 is coated.

[0047] And in the organic electroluminescence luminescence equipment of the first above-mentioned example, the septum resist 8 used in case patterning formation of the above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b is carried out by wet spreading is formed. All the organic electroluminescence luminous layers 3r, 3g, and 3b are formed within limits in which this septum resist 8 is formed on the transparence substrate 1 with which anode 2 -- and the cathode terminal 6 which consist of ITO were formed here, and was gone across and formed in the range larger than the part by which all the organic electroluminescence luminous layers 3r, 3g, and 3b are arranged, and this septum resist 8 was formed. And opening 8a-- is formed in the part in which each organic electroluminescence luminous layers 3r, 3g, and 3b are formed plurality and in the shape of a stripe, and

it is in the condition that the anode 2 was exposed from this opening 8a-- at the septum resist 8. Moreover, as for the septum resist 8 shown in drawing 1 (B), the thickness L1 is set to 0.015mm (preferably 0.005mm or more).

[0048] And the septum resist 8 consists of a well-known photopolymer, and patterning is carried out with photolithography. And a part serves as a groove of above-mentioned opening 8a-- which makes transparence substrate 1 top face (it is an anode 2 in fact -- top face) a pars basilaris ossis occipitalis by forming the septum resist 8 which has opening 8a-- as mentioned above on the transparence substrate 1. The ingredient of the liquefied organic electroluminescence luminous layers 3r, 3g, and 3b is injected into this part by the general-purpose high precision dispenser, for example. That is, it is each opening 8a about the tip of the needle (needle) of a dispenser. -- It arranges in a location and is opening 8a. -- A liquefied ingredient is poured in inside. Even if itself is fusing the condition of the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b at the time of impregnation, it may be in the condition distributed by homogeneity within the solvent also in the condition of having acted to the solvent as Tokai. And even if the polymerization has already been carried out at this time and the polymerization is started, in the condition that the polymerization is not started yet is sufficient. Although the poured-in ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is hardened behind and serves as the organic electroluminescence luminous layers 3r, 3g, and 3b, it has the inclination for the thickness to become thin compared with hardening before in that case. The septum resist 8 is opening 8a so that it may become the thickness which is extent to which the organic electroluminescence luminous layers 3r, 3g, and 3b can fully emit light. -- Even if the ingredient of the liquefied organic electroluminescence luminous layers 3r, 3g, and 3b is poured in inside, it is set as the thickness of extent of opening 8a-- which does not fall from a top, and membranes are formed. Moreover, when each organic electroluminescence luminous layers 3r, 3g, and 3b consist of two or more carrier transportation layers, the same polymer system ingredient which serves as a hole transportation layer at the beginning is poured into full open regio-oralis 8a--. The polymer system ingredient poured in from the needle of a dispenser advances along with opening 8a of the septum resist 8 by capillarity, and is deposited on uniform thickness. Usually, although the luminescence minimum pitch of organic electroluminescence becomes so short that the amount of the breathed-out organic electroluminescence ingredient is small since an organic electroluminescence ingredient does not spread so much when an organic electroluminescence ingredient is breathed out by the ink jet method and two or more luminescence pixels are formed in the shape of a matrix Although a luminescence minimum pitch becomes long and the luminescence field of a high definition pitch cannot be formed if there is much minimum discharge quantity, in this way While shortening the minimum luminescence pitch more to discharge quantity and being made to uniform thickness since it extends along with opening 8a if the regurgitation of the polymer system ingredient poured in from a needle is carried out into the long and slender slit surrounded more by opening 8a, the pitch can be easily made regularity. Subsequently, opening 8a-- in which organic electroluminescence luminous layer 3r which emits light in red similarly is formed after a hole transportation layer hardens, To opening 8a-- in which organic electroluminescence luminous layer 3b which emits light green is formed, and opening 8a-- in which 3g of organic electroluminescence luminous layers which emit light in blue is formed Respectively, the polymer system ingredient (if wet spreading is possible, a low-molecular ingredient is also good) of a different luminous layer corresponding to the luminescent color is poured in, and it deposits in each opening 8 at respectively uniform thickness. And again, after a luminous layer hardens, full open regio-oralis 8a-- is made to pour in and harden the polymer system ingredient used as an electronic transportation layer, and the organic electroluminescence luminous layers 3r, 3g, and 3b are formed.

[0049] Making it be a ****, by things, as compared with vacuum evaporationo and the case where patterning formation of the stripe-like organic electroluminescence luminous layers 3r, 3g, and 3b is carried out using a printing method etc., finer patterning becomes possible (based on the precision of patterning in the photolithography of the septum resist 8), and each band-like organic electroluminescence luminous layers 3r and 3g and spacing (pitch) of 3b can be made short. In addition, when carrying out color mixture of the light of each organic electroluminescence luminous layers 3r, 3g,

and 3b by making short the pitch of the organic electroluminescence luminous layers 3r, 3g, and 3b, it becomes possible to carry out color mixture in a shorter distance so that it may mention later, and it becomes possible to make thickness of organic electroluminescence luminescence equipment very thin. In addition, in case the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is poured into each opening 8a-- of every [of the septum resist 8] with a dispenser, the minimum regurgitation precision by the dispenser serves as order which is severalmicrol, and the coverage control by the high precision dispenser general-purpose enough is possible.

[0050] Moreover, when using the septum resist 8 as mentioned above, while considering as the condition or the condition of having pushed which attached the board used as a lid on the septum resist 8, for example, an inlet and an exhaust port may be formed in this board etc. And it is good also as what makes opening 8a-- the shape of the interior of tubing, and pours the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b into opening 8a-- from an inlet by being in the condition that opening 8a-- of the septum resist 8 had up-and-down opening blockaded by the transparence substrate 1 and the board. If it does in this way, it will be opening 8a easily by capillarity. -- The ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b can be poured in inside.

[0051] And as mentioned above, on the transparence substrate 1, by ITO, the manufacture approach of the organic electroluminescence luminescence equipment shown in drawing 1 carries out pattern formation of anode 2 -- and the cathode terminal 6 in a short pitch with photolithography, forms the organic electroluminescence luminous layers 3r, 3g, and 3b on the transparence substrate 1 after forming the septum resist 8, and, subsequently to in opening 8a of the septum resist 8, subsequently, carries out vacuum evaporationo membrane formation of the cathode 4, for example. And capillary tube impregnation of the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is carried out at opening 8a-- of the septum resist 8 (although opening 8a-- is a groove, capillarity acts between the walls of the right and left which form a slot). Moreover, on the occasion of impregnation of the organic electroluminescence luminous layers 3r, 3g, and 3b, it carries out to the stratification. For example, in order of an electron hole transportation layer, a luminous layer, and an electronic transportation layer, impregnation of an ingredient and desiccation (hardening) are repeated and are performed. Moreover, since a cathode 4 will be in the condition (it insulated) of having become independent to every opening 8a-- so that it may mention later when the septum resist 8 is formed, it is each opening 8a by the conductive paste layer 7. -- Cathode 4 inner comrades and the inner cathode terminal 6 are short-circuited, respectively. Moreover, the formation approach of various kinds of above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b is applicable also to organic electroluminescence luminescence equipment and the organic electroluminescence display of the second less than example which are mentioned later.

[0052] A configuration is simplified and illustrated in order that drawing 1 may give easy explanation of the configuration of the organic electroluminescence luminescence equipment of the first example. And in fact As shown in drawing 1 , three organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light in a color different, respectively are made into a lot, and as the organic electroluminescence luminescence fields 5r, 5g, and 5b of this lot are shown in drawing 2 , a large number are arranged in the shape of a stripe in this order. In addition, drawing 2 R> 2 shows the luminescence side A of the organic electroluminescence luminescence equipment used as for example, a back light for 3.8 inch LCD, and the part of each line arranged in the shape of a stripe shows the organic electroluminescence luminescence fields 5r, 5g, and 5b of a lot. [many] And if it explains more concretely, lateral width of face is set to 82.4mm, and, as for the size of a luminescence side, width of face of a lengthwise direction is set to 63.2mm. And three organic electroluminescence luminescence fields 5r, 5g, and 5b used as a RGB lot are arranged 274 sets and in the shape of a stripe (the organic electroluminescence luminescence fields 5r, 5g, and 5b are arranged in the shape of 822 stripes).

[0053] And width of face of one band which consists of three organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light in three colors of RGB is set to about 0.3mm. And as shown in drawing 1 (B), the pitch L2 of each organic electroluminescence luminescence fields 5r, 5g, and 5b is set

to about 0.1mm. In addition, width of face L3 of each organic electroluminescence luminous layers 3r, 3g, and 3b is set to about 0.06mm, and spacing L4 (width of face of the septum of a septum resist) of each organic electroluminescence luminous layers 3r and 3g and 3b is set to about 0.04mm. Moreover, opening 8a of the septum resist 8 -- A pitch will also be set to about 0.1mm. Moreover, the pitch of an anode 2 is also set to about 0.1mm, width of face L5 of an anode 2 is set to about 0.08mm, and spacing L6 between anodes is set to about 0.02mm. In addition, when this invention is not limited and thickness of the transparence substrate 1 is set [for example,] to 0.3mm, such sizes are examples of the size in which the color which emitted light from the organic electroluminescence luminescence fields 5r, 5g, and 5b of each color fully carries out color mixture in the front face (field where the field in which the organic electroluminescence luminescence fields 5r, 5g, and 5b were formed is opposite) of the transparence substrate 1, as mentioned later.

[0054] Here, the color mixture of luminescence of each color is explained from the organic electroluminescence luminescence fields 5r, 5g, and 5b of each color within the glass substrate (transparence substrate 1) with which the organic electroluminescence luminescence fields 5r, 5g, and 5b were formed in the tooth-back side. Drawing 3 shows the route of light by the arrow head in the organic electroluminescence luminescence equipment which consists of a transparence substrate 1 which the light from the organic electroluminescence luminous layer 3 penetrates as well as the organic electroluminescence luminous layer 3 (3r, 3g, 3b) which is the cathode 4 and emitter which act as a reflecting plate, and the anode 2 which is the transparent electrode which the light from this organic electroluminescence luminous layer 3 penetrates. In addition, a part will go to the transparence substrate 1 side, after a part reflects in a cathode the light which emitted light from the organic electroluminescence luminous layer 3 toward the direct transparence substrate 1 side. Moreover, in drawing 3 , the arrow head shows the route of light supposing the organic electroluminescence luminous layer 3 carrying out perfect diffusion luminescence.

[0055] And as shown in drawing 3 , the light with a small include angle is emitted into mind through the organic electroluminescence luminous layer 3, an anode 2, and the transparence substrate 1 to the direction of a normal of the front face of a transparence substrate. Moreover, the light with a big include angle will be reflected to the above-mentioned normal direction in the interface of the organic electroluminescence luminous layer 3 and an anode 2, the interface of an anode 2 and the transparence substrate 1, and the interface of the transparence substrate 1 and the open air, without carrying out front injection. And most light which the reflected light repeats reflection within each class, or returns to a front layer and which was finally reflected although it will graze will be injected from the end face of each class, or it will be absorbed in each class.

[0056] Therefore, when 1.60 and an anode 2 set it as 2.00 and the transparence substrate 1.45 and the open air sets [the organic electroluminescence luminous layer 3] the refractive index of each class to 1.0008, front radiation of the light of 38.7 or less (whenever [total reflection critical angle]) degrees will be carried out for an include angle [as opposed to the normal within a transparence substrate in injecting / only the light of a specific include angle / finally /-to normal ****] here. And the light which has an include angle larger than it to the direction of a normal can be disregarded. Therefore, in order to fully carry out color mixture of each luminescent color from the organic electroluminescence luminescence fields 5r, 5g, and 5b within the transparence substrate 1, it is necessary to make it each coloring light of less than lap within the transparence substrate 1 whenever [total reflection critical angle] in organic electroluminescence luminescence equipment.

[0057] Drawing 4 shows the lap of each luminescent color within the above-mentioned thickness (0.3mm) transparence substrate 1 in the case of having arranged each organic electroluminescence luminous layer 3 which has above-mentioned width of face (0.06mm) in the above-mentioned pitch (0.1mm) using the transparence substrate 1 which it has. And in the transparence substrate 1, to the direction of a normal, the light r, g, and b of 38 or less than 7 times, i.e., the light emitted from the front face of the transparence substrate of each organic electroluminescence luminescence field on condition that a ****, is illustrated to the flabellate form, and it is shown in drawing 4 as mentioned above that each luminescent color is carrying out color mixture. In addition, while the thickness of the transparence

substrate 1 is not limited to above-mentioned thickness and the refractive index of each class may also change with the differences in the presentation and quality of the material, the transparence substrate 1 may not meet with the open air, and the width of face and the pitch of each organic electroluminescence luminous layers 3r, 3g, and 3b need to be decided corresponding to values, such as thickness of the transparence substrate 1, and a refractive index of each class. Moreover, it sets to drawing 4 and is an anode 2. -- Illustration is omitted.

[0058] And according to the organic electroluminescence luminescence equipment of the first example, color mixture of the RGB three primary colors can be carried out, and light can be emitted in white. Moreover, since it is not necessary in each organic electroluminescence luminescence fields 5r, 5g, and 5b to make two or more luminescent material intermingled, or to carry out a laminating in this case, high brightness is realizable with a low power. Moreover, since each organic electroluminescence luminescence fields 5r, 5g, and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) are formed in the shape of a stripe, each organic electroluminescence luminescence fields 5r, 5g, and 5b can be arranged in the shape of a mosaic, or it can manufacture easily and cheaply as compared with the case where each field has been distributed and arranged. And while the part of an organic EL device of the component body except the transparence substrate 1, a closure part, etc. is very thin and thin-shape-izing is possible from the first Since color mixture of each luminescent color is carried out and white can be obtained even if it makes the transparence substrate 1 thin if the pitch of the organic electroluminescence luminescence fields 5r, 5g, and 5b arranged in the shape of a stripe as mentioned above is narrowed The organic electroluminescence luminescence equipment of the first example can be suitably used as a back light of non-spontaneous light indicating equipments, such as LCD.

[0059] Moreover, the power consumption value of per 50 (cm2) at the 1000 (cd/m2) time of brightness of the organic electroluminescence luminescence equipment of the first example with which Table 1 shown below is shown in drawing 2 , The brightness 1000 (cd/m2) at the time of using the organic EL device which performs white luminescence to the luminous layer which consists of one conventional layer with one component by intermingling the luminescent material of the luminescent color different, respectively as a back light, And the power consumption value of per 50 (cm2) in the 2 (lm/W) time is shown. In addition, these values are the things at the time of making magnitude of a luminescence side into 3.8 inches (width: a vertical ratio 4:3) of vertical angles. Moreover, based on each luminous efficiency of the organic polymer EL element of the red shown in Table 2 shown below, an organic green polymer EL element, and an organic blue polymer EL element, the trial calculation of the property of the organic electroluminescence luminescence equipment of the first example is made as what has arranged these organic EL devices in the shape of a stripe as above-mentioned organic electroluminescence luminescence fields 5r, 5g, and 5b.

[0060]

[Table 1]

	本発明の 有機ＥＬ混色白色	従来の 有機ＥＬ白色発光
消費電力	128mW	約 4000mW
発光効率 (m/W)	4.5	7.85

[Table 2]

	赤	緑	青
色度	(0.61, 0.38)	(0.38, 0.58)	(0.18, 0.24)
発光効率 lm/W	3.4	7.0	3.0
輝度比	31	19	50
消費電力 ($W/50cm^2$)	1.4	0.4	2.6

[0061] Moreover, as shown in Table 1, even if the power consumption per unit area is very low as compared with the organic EL device with which the organic electroluminescence luminescence equipment of the first example makes white emit light with one conventional component and the luminous efficiency of the above-mentioned organic EL device becomes high somewhat from an above-mentioned value, it turns out that the organic electroluminescence luminescence equipment of this invention is more advantageous. Moreover, it is possible it to be a possible value that it is efficient, even if it compares with the back light which used fluorescence tubing and a light guide plate, and to fully use the organic electroluminescence luminescence equipment of the first example, replacing with the back light using fluorescence tubing and a light guide plate, and for this to attain thin shape-ization of a non-spontaneous light display. Moreover, since the organic EL device is used for the organic electroluminescence luminescence equipment of this invention, the adjustment to proper brightness is easy for it.

[0062] Moreover, in the organic electroluminescence luminescence equipment of the first example, since anode 2 -- has been independent to each organic electroluminescence luminescence fields 5r and 5g and every 5b, a drive current is controlled to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and brightness can be changed into them. Therefore, in the organic electroluminescence luminescence equipment of the first example, brightness is controlled to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and a whiteness degree can be adjusted to them. That is, the whiteness degree of the arbitration which suited the transparency property of the light of the LCD panel (for example, LCD equipped with the color filter) is realizable by changing the brightness balance of RGB. Moreover, since each organic electroluminescence luminescence fields 5r, 5g, and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) are made into the shape of a stripe as mentioned above By anode 2 -- or forming a cathode 4 in the shape of a stripe, when the organic electroluminescence luminescence fields 5r, 5g, and 5b have been arranged in the shape of a mosaic, or when it distributes finely and the organic electroluminescence luminescence fields 5r, 5g, and 5b have been arranged, it compares. A cathode 4 can be easily made into anode 2 --, or the organic electroluminescence luminescence fields 5r and 5g and the thing which became independent to every 5b.

[0063] Moreover, in the organic electroluminescence luminescence equipment of the first example, light can be mostly emitted in the color of arbitration by controlling brightness to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b in addition to white luminescence. Moreover, by switching to every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, it is also possible to carry out sequential luminescence of the light of three colors of RGB, and when it considers as such a configuration, it can use as a back light of field sequential full color LCD. Since especially organic electroluminescence luminescence equipment has the very small electric capacity of an illuminant fundamentally and can be switched to a high speed, it can be suitably used for a high speed as a back light of field sequential full color LCD which needs to change the luminescent color (since the high-speed response for 100 or less ns is possible for an organic EL device). As liquid crystal applied to the high-speed response LCD, a ferroelectric liquid crystal and antiferroelectricity liquid crystal are mentioned.

[0064] In addition, in the first example, as shown in drawing 1 , although area of the organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color was made almost the same, the width of face of the organic electroluminescence luminescence fields 5r, 5g, and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) of each luminescent color as the almost same thing, for example The organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color It is good also as what changes width of face into each organic electroluminescence luminescence

fields 5r and 5g and every 5b, and changes the area with luminescent material used corresponding to the brightness based on the luminescent material of each organic electroluminescence luminescence fields 5r, 5g, and 5b since the brightness differs even if it drives with the same power.
[0065] Namely, since the organic EL device using the luminescent material which the organic EL device using the luminescent material which generally emits light green has high brightness, and emits light in red is low, brightness Width of face of 5g of organic electroluminescence luminescence fields which emit light green (3g of organic electroluminescence luminous layers) is made narrower than the width of face of organic electroluminescence luminescence field 5r (organic electroluminescence luminous layer 3r) which emits light in red. In the thing, then manufacture phase corresponding to those width of face for area of the organic electroluminescence luminescence fields 5r, 5g, and 5b of the almost same die length, the brightness of each organic electroluminescence luminescence fields 5r, 5g, and 5b can be adjusted. [of each luminescent color]
[0066] Moreover, since anode 2 -- is separated and formed in every each organic electroluminescence luminescence fields 5r and 5g, every 5b, organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, the electrical potential difference impressed to each so that thing white luminescence with sufficient balance can be performed in the optimal chromaticity may be optimized. However, even if it is equal applied voltage or force current, both cathodes 4 can be made to emit light with anode 2 -- in the color which was beforehand set up also as one common common electrode, respectively and to desire in each organic electroluminescence luminescence fields 5r, 5g, and 5b, when the brightness balance of each organic electroluminescence luminescence fields 5r, 5g, and 5b is the optimal.
[0067] Next, with reference to drawing 5 , the organic electroluminescence luminescence equipment of the second example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence luminescence equipment of the second example changes the configuration of some organic electroluminescence luminescence equipments of the first example, gives the same sign to the same component as the organic electroluminescence luminescence equipment of the first example, and omits the explanation. In addition, in drawing 5 (B), the organic electroluminescence luminous layers 3r, 3g, and 3b, the cathode 4, and the conductive paste layer 7 are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid. The organic electroluminescence luminescence fields 5r, 5g, and 5b are formed in the shape of a stripe on the transparence substrate 1 like the first example by the organic electroluminescence luminescence equipment of the second example shown in drawing 5 (B) anode 2 -- and by forming the cathode terminal 6, the septum resist 8, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, and the conductive paste layer 7. Drawing 5 illustrates the outline of the organic electroluminescence luminescence equipment of the second example. And in fact While three organic electroluminescence luminescence fields 5r, 5g, and 5b where the luminescent color was made into red, green, and blue, respectively are mutually formed in band-like in parallel Many organic electroluminescence luminescence fields 5r, 5g, and 5b which make these three a lot are mutually arranged in parallel like the organic electroluminescence luminescence equipment of the 1st example shown in drawing 2 .
[0068] And the configurations of the septum resist 8 differ by the first example and the second example, and the organic electroluminescence luminescence equipment of the second example has the same composition as the first example in other points. And although opening 8b-- is formed in the shape of a stripe like the first example as the septum resist 8 in the organic electroluminescence luminescence equipment of the second example is shown in drawing 5 (A) and (B), at least one or more extension section 8c-- is formed in each opening 8b--, respectively. This extension section 8c-- is made large in width of face as compared with other parts of opening 8b. And in the second example, it is opening 8b-- which adjoins each other mutually, and is [-- It enables it to form extension section 8c-- with width of face wide as much as possible in the gap between comrades.] extension section 8c. -- Opening 8b which shifts a location and adjoins each other -- It sets in the gap between comrades and is extension section 8c. -- Opening 8b which it is made for comrades not to lap and was restricted

[0069] Moreover, extension section 8c -- The die length of opening 8b-- which met in the die-length direction is extension section 8c. -- It is the same as that of width of face almost, or a ******** is more desirable than it. And in case above-mentioned extension section 8c-- pours in the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b with a dispenser, it can be made into the location which arranges the needle of a dispenser. And above-mentioned extension section 8c -- It becomes possible by preparing to compensate the location precision at the tip of a needle of a dispenser. That is, when the width of face of the location of opening 8b-- of the septum resist 8 which arranges the above-mentioned needle tip is large, a needle tip can be doubled with opening 8b-- more easily and certainly.

[0070] Moreover, it can prevent that an ingredient falls besides opening 8b from a needle to ingredient ****** by making large width of face of the location where a needle is arranged of opening 8b--. Therefore, in the organic electroluminescence luminescence equipment of the second example, while being able to do so the same operation effectiveness as the first example, in manufacture of organic electroluminescence luminescence equipment, improvement in the yield can be aimed at by preparing extension section 8c-- in opening 8b of the septum resist 8. Moreover, it can respond to pouring in an ingredient with a needle from two or more places in one opening by preparing two or more extension section 8c-- in one opening 8b--. In addition, if it enables it to pour an ingredient into one opening 8b-- from two or more places, when the elongation which met in the die-length direction of opening 8b by the viscosity of an ingredient being high in opening 8b etc. is bad, an ingredient can be certainly poured into the whole opening 8b. Moreover, if an ingredient can be poured into coincidence from two or more places, compaction of working hours can be aimed at.

[0071] Drawing 5 (C) shows the modification of the second above-mentioned example, and the organic electroluminescence luminescence equipment of this modification has the same configuration as the organic electroluminescence luminescence equipment of the second example except for the configuration of the septum resist 8. And in the septum resist 8 of a modification, although extension section 8e-- is prepared in 8d [of openings] -- like the second example While this extension section 8e-- has composition of 8d [of openings] -- formed in one of edges, in the openings 8d and 8d of an adjacent pair, the location in which extension section 8e-- is prepared by 8d of one openings and 8d of openings of another side serves as an edge of the opposite side mutually. And the edge in which the extension section of 8d of one openings is not prepared is to the near side of extension section 8e of one edge of 8d of openings of another side. And in 8d [of each opening] --, the width of face (die length which intersects perpendicularly in the die-length direction of 8d of openings) of extension section 8e is what applied the width of face of the gap for 8d of these openings, and 8d to the width of face of 8d of openings, and 8d two duties. Therefore, while it is possible to make width of face of extension section 8e larger than the second above-mentioned example while being able to do so the operation effectiveness same in this modification as the ****** and above-mentioned second example and being able to arrange the needle of a dispenser to extension section 8e-- more certainly, ****** in the arrangement location of a needle can be prevented. That is, extension section 8e-- can be more efficiently arranged to 8d [of openings] --.

[0072] Next, with reference to drawing 6 and drawing 7 , the organic electroluminescence luminescence equipment of the third example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence luminescence equipment of the third example changes the configuration of some organic electroluminescence luminescence equipments of the first example, gives the same sign to the same component as the organic electroluminescence luminescence equipment of the first example, and omits the explanation. In drawing 6 In addition, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, the conductive paste layers 7 and 7r, Illustrate 7g and 7b in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid, and they are set to drawing 7 . While illustrating the organic electroluminescence luminous layers 3r, 3g, and 3b and the septum resist 9 in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid, illustration of a cathode 4 and the conductive paste layers 7, 7r, 7g, and 7b is omitted. And drawing 6 and drawing 7 illustrate the same

organic electroluminescence luminescence equipment.
[0073] The organic electroluminescence luminescence fields 5r, 5g, and 5b are formed in the shape of a stripe on the transparence substrate 1 like the first example by the organic electroluminescence luminescence equipment of the third example shown in drawing 6 and drawing 7 anode 2 -- and by forming the cathode terminal 6, the septum resist 9, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, and the conductive paste layer 7. Drawing 6 and drawing 7 illustrate the outline of the organic electroluminescence luminescence equipment of the third example. And in fact While three organic electroluminescence luminescence fields 5r, 5g, and 5b where the luminescent color was made into red, green, and blue, respectively are mutually formed in band-like in parallel Many fields 5r, 5g, and 5b from organic electroluminescence which make these three a lot are mutually arranged in parallel like the organic electroluminescence luminescence equipment of the 1st example shown in drawing 2 R> 2.
[0074] And having formed the structure for drawer wiring of anode 2 -- on the transparence substrate 1, so that it could connect with the exterior at every organic electroluminescence luminescence field 5r and 5g of each color (class) and 5b (organic electroluminescence luminous layers 3r, 3g, and 3b) differ by the first example and the third example. Namely, in the first example and the second example, it receives having used [of anode 2 -- formed in each organic electroluminescence luminescence fields 5r and 5g and every 5b] one edge as each organic electroluminescence luminescence fields 5r and 5g and the anode terminal of every 5b as it was. Anode 2 -- of each organic electroluminescence luminescence fields 5r and 5g and every 5b is summarized to the organic electroluminescence luminescence fields 5r and 5g of the various kinds which emit light in each color, and every 5b, and it is made to connect with the anode terminals 2r and 2g for every luminescent color, and 2b on the transparence substrate 1 in the third example. Below, a different part from the first example of the third example is explained.
[0075] He is trying for each anode 2 -- to differ in die length in every organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, as shown in drawing 6 and drawing 7 , one edge is made into a different location for every luminescent color of each anode 2 -- by arranging the location, as for the other-end section by the side of the cathode terminal 6 (the thing of the same luminescent color arranged), and it is ******. For example, one edge of the anode 2 of red organic electroluminescence luminescence field 5r is [the luminescent color] short, and one edge has the long luminescent color and, as for the anode 2 of blue organic electroluminescence luminescence field 5b, let it be the die length between two above-mentioned anodes 2, as for the anode 2 which is 5g of organic electroluminescence luminescence fields where the luminescent color is green. That is, while the location of one edge of an anode 2 is changed for every luminescent color, the location of one same terminal of the anode 2 of the luminescent color is mostly arranged on the straight line which intersects perpendicularly in the die-length direction of an anode 2 mostly. And the anode terminals 2r and 2g of the number corresponding to the number of the classes of luminescent color of the organic electroluminescence luminescence fields 5r, 5g, and 5b (here three) in the transparence substrate 1 top of the side of all anode 2 -- and 2b are formed from ITO.
[0076] In case the above-mentioned anode terminals 2r and 2g and 2b form anode 2 -- and the cathode terminal 6, while they are formed in coincidence, the location is in the anode terminals 2r and 2g corresponding to [support the location of one edge and] the same luminescent color of anode 2 -- for every luminescent color, 2b, and the condition of anode 2 -- that one edge was located in a line on the line of anode 2 -- which intersects perpendicularly in the die-length direction mostly. Therefore, in the organic electroluminescence luminescence equipment of the third example which has the three luminescent color, three trains which consist of two or more anode 2 -- the organic electroluminescence luminescence fields 5r and 5g which emit light in the same color, and for one anode terminals 2r and 2g, 2b, and 5b will be formed.
[0077] And unlike the 1st example and the 2nd example, it is formed in the range containing all the whole anode 2 including one edge of an anode 2, and the septum resist 9 of the third example is opening 9a of the opening 8a-- later mentioned while each anode 2 -- is exposed according to an individual in a location like the first example. -- Each anode 2 -- is exposed according to an individual in the location.

While the same opening 8a-- as the septum resist 8 of the first example is formed in the septum resist 9, opening 9a-- is formed in the location corresponding to one edge of each anode 2 --. Therefore, it is the arrangement also with the location same [anode 2 --] of each opening 9a-- as one edge. In addition, also in the septum resist 9, the liquefied ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is poured into opening 8a-- like the case of the first example.

[0078] And anode terminal 2r corresponding to [as shown in drawing 6] the same luminescent color, While the band-like conductive paste layers 7r, 7g, and 7b are formed, respectively and each conductive paste layers 7r, 7g, and 7b are connected with the anode terminals 2r and 2g corresponding to the same luminescent color, and 2b over 2g, 2b, and opening 9a-- Anode 2 corresponding to the same luminescent color through opening 9a-- -- It connects with one edge. Namely, all the anodes 2 of organic electroluminescence luminescence field 5r from which the luminescent color serves as red, All the anodes 2 of 5g of organic electroluminescence luminescence fields where anode terminal 2r for red in the luminescent color is short-circuited by conductive paste layer 7r, and becomes green [the luminescent color], The luminescent color is short-circuited for 2g of anode terminals for green by 7g of conductive paste layers, and all the anodes 2 of organic electroluminescence luminescence field 5b from which the luminescent color serves as red, and anode terminal 2b for red in the luminescent color are short-circuited by conductive paste layer 7b. Moreover, each conductive paste layers 7r, 7g, and 7b are arranged almost in parallel so that it may not contact mutually. Therefore, since drive control can be carried out for every anode terminal 2r and 2g and 2b, it is possible to change brightness into every organic electroluminescence luminescence field 5r and 5g of each luminescent color and 5b, to change the color by which color mixture is finally carried out, or to turn on and off to every organic electroluminescence luminescence field 5r and 5g of each luminescent color and 5b.

[0079] By the above configuration, the same operation effectiveness as the first example can be acquired in the organic electroluminescence luminescence equipment of the third example. Moreover, since it will connect with the same anode terminals 2r and 2g for the luminescent color, and 2b while anode 2 -- of the organic electroluminescence luminescence fields 5r, 5g, and 5b of the same luminescent color is mutually connected on a glass substrate, wiring which connects the anode terminals 2r and 2g and 2b for every luminescent color is not needed, but the configuration of organic electroluminescence luminescence equipment can be simplified on the outside of the transparence substrate 1. In case the anode terminals 2r and 2g and 2b form anode 2 -- and the cathode terminal 6, they can be formed in coincidence. Moreover, the septum resist 9 Except having opening 9a--, it is almost the same as that of the septum resist 8 of the first example, and can form like the septum resist 8 only by changing the configuration of patterning, and in case the conductive paste layers 7r, 7g, and 7b also form the conductive paste layer 7, it can form in coincidence.

[0080] Therefore, since it is not necessary to prepare wiring which can form the outgoing line which puts together the anode corresponding to each luminescent color, respectively on the transparence substrate 1, and is put together in the exterior of the transparence substrate 1 at every [corresponding to each luminescent color] anode 2 --, without increasing especially a process, the fabrication operation of organic electroluminescence luminescence equipment can be saved labor, and a cost cut can be aimed at. In addition, also in the third example, it is good also as what forms the extension section in opening 8a-- as shown in the second example and its modification.

[0081] Next, with reference to drawing 8 and drawing 9 , the organic electroluminescence luminescence equipment of the fourth example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence luminescence equipment of the fourth example changes the configuration of some organic electroluminescence luminescence equipments of the third example, gives the same sign to the same component as the organic electroluminescence luminescence equipment of the first example and the third example, and omits the explanation. In drawing 8 Moreover, the organic electroluminescence luminous layers 3r, 3g, and 3b, a cathode 4, conductive paste layer 7r, 7g and 7b are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid. While illustrating the organic electroluminescence luminous layers 3r, 3g, and 3b and the septum resist 9 in drawing 9 in the condition that it was transparent as a

pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid, illustration of a cathode 4 and the conductive paste layers 7r, 7g, and 7b is omitted. And drawing 8 and drawing 9 illustrate the same organic electroluminescence luminescence equipment.

[0082] Two or more organic electroluminescence luminescence fields 5r, 5g, and 5b are formed on a stripe like the first example by the organic electroluminescence luminescence equipment of the fourth example shown in drawing 8 and drawing 9 by forming an anode 11, the cathode terminal 6, the septum resist 9, the organic electroluminescence luminous layers 3r, 3g, and 3b, and a cathode 4 on the transparence substrate 1. Drawing 8 and drawing 9 R> 9 illustrate the outline of the organic electroluminescence luminescence equipment of the fourth example. And in fact While three organic electroluminescence luminescence fields 5r, 5g, and 5b where the luminescent color was made into red, green, and blue, respectively are mutually formed in band-like in parallel Many organic electroluminescence luminescence fields 5r, 5g, and 5b which make these three a lot are mutually arranged in parallel like the organic electroluminescence luminescence equipment of the 1st example shown in drawing 2 .

[0083] And a point which is different by the third example and the fourth example is set to the organic electroluminescence luminescence equipment of the third example. Pack the cathode 4 of each organic electroluminescence luminescence fields 5r, 5g, and 5b into one, and it considers as a common electrode. And summarize anode 2 -- to every organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and it sets to the organic electroluminescence luminescence field of the fourth example to having enabled it to drive for every organic electroluminescence luminescence field of each luminescent color. It is summarizing anode 2 -- to one, and considering as a common electrode, and packing a cathode 4 into every organic electroluminescence luminescence field 5r and 5g of each luminescent color, and 5b, and enabling it to drive for every organic electroluminescence luminescence field of each luminescent color.

[0084] And as for the organic electroluminescence luminescence equipment of the fourth example, an anode 11 (anode terminal 11a is included), the cathode wiring 12r, 12g, and 12b, and the cathode terminals 13r, 13g, and 13b are formed from ITO on the above-mentioned transparence substrate 1 and this transparence substrate 1, respectively. An anode 11 is not formed in each organic electroluminescence luminescence fields 5r and 5g and every 5b like the 1-third example, but it is formed in the shape of [large] a field so that it may correspond to all the organic electroluminescence luminescence fields 5r, 5g, and 5b with one anode 11, and it serves as a common electrode as it is. Moreover, the cathode wiring 12r, 12g, and 12b is formed in each organic electroluminescence luminous layers 3r and 3g formed in the shape of a stripe on an anode 11, and every [one / every] 3b. And in the location distant from the anode 11, each cathode wiring 12r, 12g, and 12b is arranged, respectively so that it may become each corresponding organic electroluminescence luminous layers 3r, 3g, and 3b and a corresponding single tier.

[0085] Moreover, each cathode wiring 12r, 12g, and 12b The location of the edge by the side of the anode 11 (the organic electroluminescence luminous layerr [3] and 3g side, the 3b side) It is arranged so that it may be mostly arranged on the straight line which met in the direction which intersects perpendicularly with the stripe-like organic electroluminescence luminous layers 3r, 3g, and 3b mostly, respectively, and for every cathode corresponding to the organic electroluminescence luminous layers 3r, 3g, and 3b of each color, the location of the other-end section shall be changed and shall differ. Moreover, the cathode wiring 12r and 12g corresponding to the organic electroluminescence luminous layers 3r, 3g, and 3b of the same color and 12b are arranged so that it may be mostly arranged on the straight line which met in the direction in which the stripe-like organic electroluminescence luminous layers 3r, 3g, and 3b and the location of one edge cross at right angles mostly.

[0086] Each cathode terminals 13r, 13g, and 13b are arranged at the condition that the cathode terminals 13r, 13g, and 13b corresponding to each luminescent color and one edge of the cathode wiring 12r, 12g, and 12b corresponding to the organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color were located in a line with the single tier, respectively while they are formed in the side of the cathode wiring 12r, 12g, and 12b on the transparence substrate 1. namely, for the cathode

terminals 13r, 13g, and 13b One edge of cathode terminal 13r for a **** and red in red, green, and every one thing corresponding to each blue luminescent color and cathode wiring 12r for all red is arranged together with a single tier, respectively. 13g of cathode terminals for green and the one side edge of 12g of all cathode wiring for green are arranged together with a single tier, and one edge of cathode terminal 13b for blue and cathode wiring 12b for all blue is arranged together with the single tier.

[0087] Moreover, between the anode 11 on the transparence substrate 1, and the cathode wiring 12r, 12g, and 12b, it is smeared for luminescent material, and the control layer 14 is formed in it so that these may be divided. When this **** control layer 14 pours the liquefied ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b into opening 8a-- of the septum resist 9 as mentioned above, it is smeared, prevents from applying a liquefied ingredient on a control layer 14, and functions as a kind of repellent.

[0088] And it is smeared and the ingredient of a control layer 14 consists of matter which makes surface energy low fundamentally. And as matter which makes surface energy low, the matter which has a long-chain alkyl group, a fluorine radical, and a silicon radical can be mentioned, for example. The copolymer which is smeared concretely, is made to carry out copolymerization of the monomer mixture containing at least tetrafluoroethylene and a kind of comonomer, and is obtained as an ingredient of a control layer 14, The fluorine-containing copolymer which has a cyclic structure object in a copolymerization principal chain, and polyethylene, polypropylene, polytetrafluoroethylene, polychlorotrifluoroethylene resin, poly dichlorodifluoroethene and chlorotrifluoroethylene, The comonomer in which a copolymer, and acrylonitrile, stearin acid vinyl, stearyl vinyl ether, acrylic-acid (meta) stearyl and other fluorine atoms with dichlorodifluoroethene are contained, The copolymer which is made to carry out copolymerization of vinyl acetate and the propionic-acid vinyl, and is obtained as these, a copolymerizable comonomer, for example, (meta), an acrylic acid, acrylic ester (meta), and a compound that has a vinyl group is mentioned. Moreover, as concrete goods which are smeared and serve as an ingredient of a control layer 14, full ONETO K-703:Dainippon Ink & Chemicals, FURORINATO:Sumitomo 3M, SAITOPPU CTX-105A:Asahi Glass, FURORO barrier:Yasunari company, Teflon AF:Du Pont, PTFE grease:NICHIAS, etc. are mentioned as a fluorine system. Moreover, silicone resin (SH200: Toray Industries silicone etc.) may be blended and applied to a general-purpose polymer (acrylic resin, an epoxy resin, urethane resin) etc. Moreover, what is necessary is to be smeared, not to be limited to an above-mentioned thing as an ingredient of a control layer 14, to crawl the liquefied ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b, and just to be able to avoid applying.

[0089] And the septum resist 9 is formed on an anode 11, the cathode wiring 12r, 12g, and 12b, the cathode terminals 13r, 13g, and 13b, and the transparence substrate 1 with which it was smeared and the control layer 14 was formed. Opening 9a-- is formed by the septum resist 9 with opening 8a-- like the septum resist 9 of the third example. And each opening 8a-- is formed over the other-end section of each cathode wiring 12r, 12g, and 12b from on [of one] the anode 11. Namely, the cathode wiring 12r, 12g, and 12b corresponds by one to one with opening 8a--. It considers as the condition of each opening 8a-- that one edge and the other-end section of the cathode wiring 12r, 12g, and 12b lapped, and the anode 11 and the other-end section of one cathode wiring 12r, 12g, and 12b which were used as the common electrode are exposed from each opening 8a--.

[0090] Moreover, it is smeared the account of a top between the part of opening 8a-- which an anode 11 exposes, and the part which the edge of the cathode wiring 12r, 12g, and 12b exposes, and a control layer 14 is exposed to it. And although the above-mentioned organic electroluminescence luminous layers 3r, 3g, and 3b are formed by pouring an above-mentioned luminescent material into each opening 8a--, a liquefied luminescent material is injected into the part of opening 8a-- which an anode 11 exposes in this case. And the luminescent material poured into opening 8a-- is opening 8a. -- Inside is flowed along with opening 8a--, and it is opening 8a. -- In case it fills up inside, he is trying not to flow into the part which it is smeared and the other-end section of the cathode wiring 12r, 12g, and 12b exposes exceeding a control layer 14 by being smeared and crawling by the control layer 14.

[0091] Therefore, the organic electroluminescence luminous layers 3r, 3g, and 3b are smeared from the

other-end section of opening 8a-- of the septum resist 9 which an anode 11 exposes, are formed in before the near side of a control layer 14, and are formed on the other-end section of the cathode wiring 12r, 12g, and 12b exposed from opening 8a--. On the other hand, opening 9a-- of the septum resist 9 is the anode 2 in the third example. -- It changes into one edge and one edge of each cathode wiring 12r, 12g, and 12b is exposed. And it corresponds to the arrangement location of one edge of each cathode wiring 12r, 12g, and 12b, and is opening 9a. -- The location is decided.

[0092] The above-mentioned cathode 4 is opening 8a of the septum resist 9 inside the periphery of the septum resist 9. -- It is formed so that most may be covered (a cathode 4 is formed in the side in which it is smeared with and opening 9a-- of the septum resist 9 is formed in addition from the control layer 14). And each opening 8a -- Since the inner cathode 4 is thinner than the thickness of the septum resist 9, With the level difference of the part and the other part of a septum of each opening 8a-- of the septum resist 9, as mentioned above It is formed in the condition of having disconnected electrically in opening 8a--, and is each opening 8a. -- It does not connect with the part of other cathodes 4 too hastily, but the inner cathode 4 is each opening 8a. -- It is the electrode which became independent for every part. And each opening 8a -- It is the part which an anode 11 exposes inside, and an anode 11 and a cathode 4 are made to counter in the condition of having made the organic electroluminescence luminous layers 3r, 3g, and 3b intervening in between, and it is the part which one edge of the cathode wiring 12r, 12g, and 12b exposes, and is in the condition that the cathode wiring 12r, 12g, and 12b and a cathode 4 contacted directly, and short-circuited. Therefore, each opening 8a-- of every, each organic electroluminescence luminescence fields 5r and 5g, and the cathode 4 that became independent to every 5b are connected to the respectively different cathode wiring 12r, 12g, and 12b.

[0093] And two or more opening 9a which the cathode wiring 12r, 12g, and 12b corresponding to the organic electroluminescence luminescence fields 5r, 5g, and 5b of the same luminescent color exposed -- From a top, it crosses on the cathode terminals 13r and 13g and 13b, and the band-like conductive paste layers 7r, 7g, and 7b thicker than the septum resist 9 are formed continuously, respectively. Here the conductive paste layers 7r, 7g, and 7b Since it is formed more thickly than the septum resist 9, conductive paste layer 7r While the luminescent color is connected by all cathode wiring 12r and opening 9a-- which are connected to red organic electroluminescence luminescence field 5r, it connects with cathode terminal 13r. While 7g of conductive paste layers is connected with 12g of all cathode wiring connected to 5g of organic electroluminescence luminescence fields where the luminescent color is green by opening 9a--, it connects with 13g of cathode terminals. Conductive paste layer 7b is connected to cathode terminal 13b while the luminescent color is connected by all cathode wiring 12b and opening 9a-- which are connected to blue organic electroluminescence luminescence field 5b.

[0094] Therefore, each organic electroluminescence luminous layers 3r, 3g, and 3b Since it considers as the condition of having been inserted into the anode 11 used as the common electrode, and the cathode 4 used as the electrode of opening 8a-- of the septum resist 9 which became independent with the level difference of a part to each organic electroluminescence luminescence fields 5r and 5g and every 5b Each organic electroluminescence luminescence fields 5r, 5g, and 5b are driven according to an individual. Moreover, the independent cathode 4 is short-circuited with the cathode wiring 12r, 12g, and 12b of opening 8a-- prepared in one edge circles in each organic electroluminescence luminescence fields 5r and 5g and every 5b.

[0095] On the other hand, it is opening 8a. -- Since the level difference of a septum etc. is not formed in order to form a part without the organic electroluminescence luminous layers 3r, 3g, and 3b inside, it is each opening 8a. -- [inside] The cathode 4 is formed in the condition of having flowed in one, and it is in the condition that an anode 11, cathode 4 part which countered, and the cathode wiring 12r, 12g, and 12b ******(ed) on both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b. Namely, opening 8a -- It can flow through the inner cathode 4, the cathode wiring 12r, 12g, and 12b, and **, without using the conductive paste layer 7. In addition, although the conductive paste layers 7r, 7g, and 7b are used in the fourth example in case the electrode of each organic electroluminescence luminescence fields 5r and 5g and every 5b is finally packed into the electrode for every luminescent color while using a cathode 4 as an independent electrode at each organic electroluminescence

luminescence fields 5r and 5g and every 5b As shown in the third example from the first example, in using a cathode 4 as a common electrode, it shall not need the conductive paste layers 7, 7r, 7g, and 7b for completeness.

[0096] And each cathode wiring 12r, 12g, and 12b In opening 9a-- of the septum resist 9, while being short-circuited with the organic electroluminescence luminescence fields 5r, 5g, and 5b of the same luminescent color by the conductive paste layers 7r, 7g, and 7b It is in the condition that the conductive paste layers 7r, 7g, and 7b corresponding to the luminescent color were short-circuited by one to one by the cathode terminals 13r, 13g, and 13b formed one [at a time] for every luminescent color, respectively. Therefore, it is possible by changing driver voltage (current) into each cathode terminals 13r and 13g and every 13b to change brightness into every organic electroluminescence luminescence field 5r and 5g of each luminescent color and 5b, to change the color by which color mixture is finally carried out, or to turn on and off to the organic electroluminescence luminescence fields 5r, 5g, and 5b of each luminescent color.

[0097] Since according to the organic electroluminescence luminescence equipment of the fourth example of the above configurations wiring into which each organic electroluminescence luminescence fields 5r and 5g and the cathode 4 made into the condition of having become independent to every 5b are packed for every luminescent color is formed on the transparence substrate 1 while being able to acquire the same operation effectiveness as the case of the first example, although there is a difference between an anode and a cathode, it can acquire the same operation effectiveness as the case where it is the third example. Even if it does not carry out patterning of the cathode 4 minutely so that it may be especially formed in each organic electroluminescence luminescence fields 5r and 5g and every 5b independently, by moreover, the septum resist 9 which has opening 8a-- Since it can consider as the configuration where it became independent to each organic electroluminescence luminescence fields 5r, 5g, and 5b, a cathode 4 can be made into the configuration where it became independent very easily to each organic electroluminescence luminescence fields 5r, 5g, and 5b. Moreover, opening 8a of the septum resist 9 -- The organic electroluminescence luminescence fields 5r and 5g and the cathode 4 in 5b are easily connectable with the exterior by [of surface energy / low] being smeared and forming a control layer 14 inside. In addition, also in the fourth example, it is good also as what forms the extension section in opening 8a-- as shown in the second example and its modification. Moreover, it is good also as what prepares a cathode terminal in each organic electroluminescence luminescence fields 5r and 5g and every 5b, without forming the cathode terminals 13r, 13g, and 13b for every luminescent color on the transparence substrate 1. Moreover, in the fourth example, it is good for the part which is smeared the account of a top and forms a control layer 14 and by which it changes, opening 8a-- of the septum resist 9 is smeared, and a control layer 14 is arranged also as what prepares the narrow-width part of opening 8a-- which narrowed width of face in the shape of a bottleneck. If it does in this way, it will be opening 8a. -- When the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is injected into the part which the inner anode 11 exposes, even if it will be in the condition that an ingredient is hard to flow previously from the narrow-width part used as a bottleneck, and is smeared the account of a top and it does not form a control layer 14, the operation effectiveness same with it having been smeared and having formed the control layer 14 can be acquired.

[0098] Next, with reference to drawing 10 , the organic electroluminescence luminescence equipment of the fifth example of the gestalt of operation of this invention is explained. In addition, to having used three kinds of organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light in the color (RGB) from which the organic electroluminescence luminescence equipment of the first example differs, respectively, two kinds of organic electroluminescence luminescence equipment 5r and 5bg(s) are used for the organic electroluminescence luminescence equipment of the 5th example, it gives the same sign to the same component as the first example, and omits the explanation. Moreover, in drawing 10 , organic electroluminescence luminous layer 3r, 3bg, the cathode 4, and the conductive paste layer 7 are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid.

[0099] As shown in drawing 10 , the organic electroluminescence luminescence equipment of the fifth

example forms organic electroluminescence luminescence field 5r and 5bg in the shape of a stripe like the organic electroluminescence luminescence equipment of the first example by forming anode 2r, 2bg, the septum resist 8, organic electroluminescence luminous layer 3r, 3bg, a cathode 4, and the conductive paste layer 7 on the transparence substrate 1. And in the 5th example, it is two kinds such as organic electroluminescence luminous layer 3r which emits light in the orange of the large wavelength field which organic electroluminescence luminous layer 3r and 3bg cross green from red, and organic electroluminescence luminous layer 3bg which emits light in the bluish green color of the large wavelength field over blue since green, and two kinds of organic electroluminescence luminescence field 5r and 5bg(s) are formed from these two kinds of organic electroluminescence luminous layer 3r and 3bg(s). And the organic electroluminescence luminescence equipment shown in drawing 10 shows the outline, and is in the condition that much organic electroluminescence luminescence field 5r of a group and 5bg(s) [a majority of] have been arranged in parallel mutually band-like, in fact by making two kinds of organic electroluminescence luminescence field 5r and 5bg(s) into a lot. For example, it is in the condition that a large number arrangement of organic electroluminescence luminescence field 5r and the organic electroluminescence luminescence field 5bg was carried out together with alternation.

[0100] And in the organic electroluminescence luminescence equipment of the fifth example, as shown in drawing 10 , anode 2bg of the for anode 2r for organic electroluminescence luminescence field 5r of Orange and for bluish green organic electroluminescence luminescence field 5bg in the luminescent color in the luminescent color is formed in the shape of a stripe by turns on the transparence substrate 1. And one edges of all of anode 2r of the plurality [luminescent color] for organic electroluminescence luminescence field 5r of Orange are connected to anode terminal 15r for Orange, and all the other-end sections of anode 2bg of the plurality [luminescent color] for bluish green organic electroluminescence luminescence field 5bg are connected to anode terminal 15bg. Therefore, anode 2r formed every each organic electroluminescence luminescence field 5r and 5bg on the transparence substrate 1 and 2bg are summarized for every luminescent color, and are connected to anode terminal 15r for each luminescent color, and 15bg so that organic electroluminescence luminescence field 5r and 5bg can be driven for every luminescent color.

[0101] In addition, anode terminal 15r and 15bg are formed from ITO. Moreover, anode 2r and 2bg are formed in the shape of a ctenidium from anode terminal 15r and 15bg, and are in the condition that anode 2bg of the shape of a ctenidium for the luminescent color of another side entered between anode 2r of the shape of a ctenidium for one luminescent color. That is, ITO of the pectinate form which consists of ITO of the pectinate form which consists of one anode 2r and anode terminal 15r, and anode 2bg of another side and anode terminal 15bg is arranged at the condition of having geared mutually. And on the transparence substrate 1, the cathode terminal 6 which consists of ITO is formed almost like the first example. In addition, since its its anode terminal 15r and 15bg are arranged at the both-ends side of each organic electroluminescence luminescence field 5r and 5bg, the cathode terminal 6 is arranged in the side of a part in which each organic electroluminescence luminescence field 5r and 5bg were formed.

[0102] And while the septum resist 8 is formed like the first example on the transparence substrate 1 with which anode 2r and 2bg were prepared, it is opening 8a of the septum resist 8. -- Each organic electroluminescence luminous layer 3r and 3bg are formed inside. And the cathode 4 is formed so that all may be covered on these organic electroluminescence luminous layer 3r and 3bg. And while short-circuiting the cathode 4 which became independent every each organic electroluminescence luminescence field 5r and 5bg by the septum resist 8 as mentioned above and considering as a common electrode, the conductive paste layer 7 is formed so that it may connect with the cathode terminal 6. That is, the conductive paste layer 7 is formed in band-like so that it may result in the cathode terminal 6, while it straddles each organic electroluminescence luminescence field 5r and 5bg.

[0103] Since according to the organic electroluminescence luminescence equipment of the fifth example which has such a configuration color mixture of the luminescent color of Orange and the bluish green luminescent color can be carried out and the white luminescent color can be obtained where the class of organic electroluminescence luminescence field 5r and 5bg (organic electroluminescence luminous layer

3r, 3bg) is reduced from three to two, the same operation effectiveness as the first example can be acquired with a easier configuration. Moreover, since organic electroluminescence luminescence field 5r and 5bg are driven for every luminescent color by setting the class of luminescent color of organic electroluminescence luminescence field 5r and 5bg to two While using anode 2r and 2bg as the independent electrode, in case wiring into which these electrodes are packed for every luminescent color on the transparence substrate 1 is carried out, the same operation effectiveness as the third example can be done so with a very easy configuration that what is necessary is just to arrange the electrode of a pectinate form in the condition of having geared mutually, as mentioned above.

[0104] In addition, in the organic electroluminescence luminescence equipment of the fifth example, it is good also as what prepares the extension section in opening 8a-- of the septum resist 8 like the second example and its modification. Moreover, in the fifth example, as shown in the first example, it sets on the transparence substrate 1. As it is good as what arranges an anode terminal every each organic electroluminescence luminescence field 5r and 5bg and is shown in the third example, without packing an anode terminal for every luminescent color It is good also as what prepares anode wiring every each organic electroluminescence luminescence field 5r and 5bg on the transparence substrate 1, summarizes this in a conductive paste layer for every luminescent color, and prepares an anode terminal for every luminescent color. Moreover, as shown in the 4th example, good of the cathode side may be carried out by using an anode side as a common electrode also as an electrode which became independent every each organic electroluminescence luminescence field 5r and 5bg, and wiring which packs into the cathode terminal for every luminescent color the cathode which became independent every each organic electroluminescence luminescence field 5r and 5bg on the transparence substrate 1 on this occasion may be prepared.

[0105] Next, with reference to drawing 11 , the organic electroluminescence display of the sixth example of the gestalt of operation of this invention is explained. In addition, the organic electroluminescence display of the sixth example applies the organic electroluminescence luminescence equipment shown in each above-mentioned example, and uses it as a spontaneous light display, and many organic electroluminescence luminescence fields 5r, 5g, and 5b of a group are mutually formed in band-like in parallel like the organic electroluminescence luminescence equipment of each example by making into a lot the stripe-like organic electroluminescence luminescence fields 5r, 5g, and 5b where two or more luminescent color differs. In addition, in the organic electroluminescence display of the sixth example, the same sign is given to the same component as the organic electroluminescence luminescence equipment of each above-mentioned example, and the explanation is omitted. Moreover, in drawing 11 , the organic electroluminescence luminous layers 3r, 3g, and 3b and a cathode 4 are illustrated in the condition that it was transparent as a pattern of the shape of the shape for example, of a slanting grid, or a horizontal grid.

[0106] As shown in drawing 11 , as for the organic electroluminescence display of the sixth example, the shape of a stripe 16 and 16, i.e., the anodes of each other which become band-like [parallel / two or more] from ITO, is formed on the transparence substrate 1. These anodes 16 and 16 serve as a scan electrode in an organic electroluminescence display. In addition, the stripe-like anodes 16 and 16 and opening 8a-- of the shape of a stripe of the septum resist 8 mentioned later are arranged so that it may intersect perpendicularly mostly mutually. Moreover, on the transparence substrate 1, the cathode terminals 17r, 17g, and 17b which consist of ITO are formed. The cathode terminals 17r, 17g, and 17b consist of ITO, and it is formed by carrying out pattern formation of the ITO on the transparence substrate 1 with anodes 16 and 16. Moreover, the cathode terminals 17r, 17g, and 17b are opening 8a while being formed so that it may correspond by one to one with opening 8a-- of the septum resist 8. -- It is arranged so that one edge and one edge of the cathode terminals 17r, 17g, and 17b may lap, and it is each opening 8a. -- Each cathode terminals 17r, 17g, and 17b are exposed from one edge.

[0107] And the septum resist 8 equipped with stripe-like opening 8a-- like the organic electroluminescence luminescence equipment of each above-mentioned example is formed on the transparence substrate 1 with which anodes 16 and 16 were formed. And opening 8a formed in the shape of a stripe -- Inside, the organic electroluminescence luminous layers 3r, 3g, and 3b are formed like the

organic electroluminescence luminescence equipment of each above-mentioned example. Here, in order to enable a full color display, while three kinds of organic electroluminescence luminous layers 3r, 3g, and 3b by which the luminescent color was made red, green, and blue, respectively are used, many organic electroluminescence luminous layers 3r, 3g, and 3b of a group will be arranged in the shape of a stripe considering ****** as a lot.

[0108] Moreover, in the septum resist 8 of the sixth example, 8f [of bottleneck / of the opening 8a-- / which made width of face narrower than other parts at one edge /-like narrow-width parts] -- is formed. 8f of these narrow-width parts is an outside [anode / 16 / which was formed in one edge side at the edge side of opening 8a-- which is one side most], and they are opening 8a. -- It is formed in the front location from one edge. And opening 8a -- When the ingredient of the organic electroluminescence luminous layers 3r, 3g, and 3b is poured into an other-end section side as mentioned above from 8f [of inner narrow-width parts] --, an ingredient flows ahead of 8f [of narrow-width parts] --, and it considers as ** conditions. It is in the condition of opening 8a-- that the organic electroluminescence luminous layers 3r, 3g, and 3b are not formed, and one edge of the above-mentioned cathode terminals 17r, 17g, and 17b is exposed to one edge from this part with this narrow-width part. Moreover, it is arranged outside the septum resist 8, and exposes, and one [the other-end section of the cathode terminals 17r, 17g, and 17b and / at least] terminal of anodes 16 and 16 can be connected now with the exterior.

[0109] And a cathode 4 is formed on the transparence substrate 1 with which the septum resist 8 was formed. The formation range of a cathode 4 is the inside [periphery / of the septum resist 8], and is range which can cover completely all opening 8a-- of the septum resist 8. And a cathode 4 is opening 8a of the septum resist 8. -- It is each opening 8a by the level difference of a part. -- It is formed in an inner part and the condition of opening 8a-- that the exterior was disconnected (insulation). Therefore, a cathode 4 is opening 8a. -- It is the configuration where each organic electroluminescence luminous layers 3r, 3g, and 3b formed inside were met, and will be in each organic electroluminescence luminous layers 3r and 3g and the condition of having been formed in every 3b (each organic electroluminescence luminescence fields 5r and 5g, 5br) independently. Therefore, opening 8a -- The part by which opposite arrangement of a cathode 4 and the anodes 16 and 16 was carried out on both sides of the inner organic electroluminescence luminous layers 3r, 3g, and 3b Stripe-like organic electroluminescence luminescence field 5r, It is set to 5g and 5b, and sets to each organic electroluminescence luminescence fields 5r, 5g, and 5b. One independent cathode 4 is arranged along the die-length direction of the organic electroluminescence luminescence fields 5r, 5g, and 5b, and two or more anodes 16 and 16 are arranged so that it may intersect perpendicularly in the die-length direction of the organic electroluminescence luminescence fields 5r, 5g, and 5b mostly.

[0110] Moreover, opening 8a -- It sets from 8f [of inner narrow-width parts] -- to an other-end section side, and they are the stripe-like anodes 16 and 16 and each opening 8a. -- On both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b, opposite arrangement of the inner cathode 4 is carried out. on the other hand -- opening 8a-- it is in the condition of the cathode terminals 17r, 17g, and 17b of each opening 8a-- of every and the cathode 4 in opening 8a-- having lapped directly, and it having been arranged, and having connected with one edge side too hastily from 8f [of inner narrow-width parts] --. And opening 8a -- It sets inside and is 8f of narrow-width parts. -- Since there is no level difference etc. in a part, there is nothing of 8f [of narrow-width parts] -- that a cathode 4 disconnects in a part, and it is opening 8a. -- It is formed after the cathode 4 has flowed in one in the whole inside.

[0111] Therefore, opening 8a -- The cathode 4 and the cathode terminals 17r, 17g, and 17b of a part with which opposite arrangement is carried out and anodes 16 and 16 and a cathode 4 serve as the organic electroluminescence luminescence fields 5r, 5g, and 5b on both sides of the organic electroluminescence luminous layers 3r, 3g, and 3b inside are in each organic electroluminescence luminescence fields 5r and 5g and the condition of having connected with every 5b. And the part to which one anode 16 laps with the organic electroluminescence luminescence fields 5r, 5g, and 5b of a lot which consist of three organic electroluminescence luminescence fields 5r, 5g, and 5b which emit light to RGB is one pixel which emits light in three colors of RGB by considering as such a configuration. In each pixel, one scan

electrode (anode 16) and three signal (data) electrodes (cathode 4 part of every opening 8a--) which became independent for every luminescent color are resembled. And more By deciding the brightness of each organic electroluminescence luminescence fields 5r, 5g, and 5b of RGB 3 color in 1 pixel, respectively, light can be emitted in the color of arbitration and a color picture can be displayed by emitting light in the color desired for every pixel.

[0112] And it enables it to connect with the exterior with each organic electroluminescence luminescence fields 5r and 5g and every 5b, without packing a cathode 4 for every luminescent color, and the fundamental configuration of this organic electroluminescence display can be easily manufactured like the organic electroluminescence luminescence equipment of each above-mentioned example while replacing the anode 11 of the fourth example with the anodes 16 and 16 which serve as a scan electrode of the shape of two or more stripe from a common field-like electrode. Moreover, in the same thing as the 3.8 inches organic electroluminescence luminescence equipment which indicated the pitch of each organic electroluminescence luminescence fields 5r, 5g, and 5b etc. to the first example, then the 3.8 inches display screen, the display of the high resolution whose pixel of horizontal:length is about 274x210 is possible.

[0113] In addition, in fact, although the organic electroluminescence display shown in drawing 11 is for explaining the outline of an organic electroluminescence display and shows the configuration only for 4 pixels, it becomes what many anodes 16 and 16 equipped with the pixel of a list and a large number in the lengthwise direction while many organic electroluminescence luminescence fields 5r, 5g, and 5b are located in a line with a longitudinal direction. Moreover, in case this organic electroluminescence display is driven, since the speed of response of an organic EL device is high-speed as mentioned above, in each pixel, it is necessary to hold in the condition of having impressed the electrical potential difference between time amount extent for one frame, and the scan electrode-signal electrode.

[0114] Moreover, in the above-mentioned organic electroluminescence display, it changes into 8f [of narrow-width parts] --, is good for the location on the transparence substrate 1 corresponding to 8f [of these narrow-width parts] -- also as a thing of the fourth example which is smeared and forms a control layer 14, and good also as what connects the cathode terminals 17r, 17g, and 17b and a cathode 4 in the conductive paste layer 7 like the first example. However, in case a cathode 4 is connected with the cathode terminals 17r, 17g, and 17b in the conductive paste layer 7, it differs from the first example, and it is each opening 8a. -- It is necessary to connect a cathode 4 and the cathode terminals 17r, 17g, and 17b by one to one. Moreover, although the cathode 4 was used as the signal electrode by using anodes 16 and 16 as a scan electrode in the sixth example, it is good also as the reverse.

[Translation done.]

* NOTICES *

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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is a drawing for explaining the structure of the organic electroluminescence luminescence equipment of the first example of the gestalt of operation of this invention.
[Drawing 2] It is the drawing in which the luminescence side of the organic electroluminescence luminescence equipment of the first example is shown.
[Drawing 3] It is the drawing in which the route of luminescence in the organic electroluminescence luminescence equipment of the first example is shown.
[Drawing 4] It is a drawing for explaining the condition of the color mixture of the luminescent color in the organic electroluminescence luminescence equipment of the first example.
[Drawing 5] It is a drawing for explaining the structure of the organic electroluminescence luminescence equipment of the second example of the gestalt of operation of this invention.
[Drawing 6] It is a drawing for explaining the structure of the organic electroluminescence luminescence equipment of the third example of the gestalt of operation of this invention.
[Drawing 7] It is a drawing for explaining the structure of the organic electroluminescence luminescence equipment of the third example.
[Drawing 8] It is a drawing for explaining the structure of the organic electroluminescence luminescence equipment of the fourth example of the gestalt of operation of this invention.
[Drawing 9] It is a drawing for explaining the structure of the organic electroluminescence luminescence equipment of the fourth example.
[Drawing 10] It is a drawing for explaining the structure of the organic electroluminescence luminescence equipment of the fifth example of the gestalt of operation of this invention.
[Drawing 11] It is a drawing for explaining the structure of the organic electroluminescence display of the sixth example.
[Description of Notations]
1 Transparence Substrate
2 Anode
2bg Anode
2r Anode
3 Organic Electroluminescence Luminous Layer
3b Organic electroluminescence luminous layer (blue)
3bg(s) Organic electroluminescence luminous layer (bluish green)
3g Organic electroluminescence luminous layer (green)
3r Organic electroluminescence luminous layer (Orange)
3r Organic electroluminescence luminous layer (red)
4 Cathode
5b Organic electroluminescence luminescence field (blue)
5bg(s) Organic electroluminescence luminescence field (bluish green)
5g Organic electroluminescence luminescence field (green)

5r Organic electroluminescence luminescence field (Orange)
5r Organic electroluminescence luminescence field (red)
11 Anode
15bg(s) Anode
15r Anode
16 Anode

[Translation done.]

* NOTICES *

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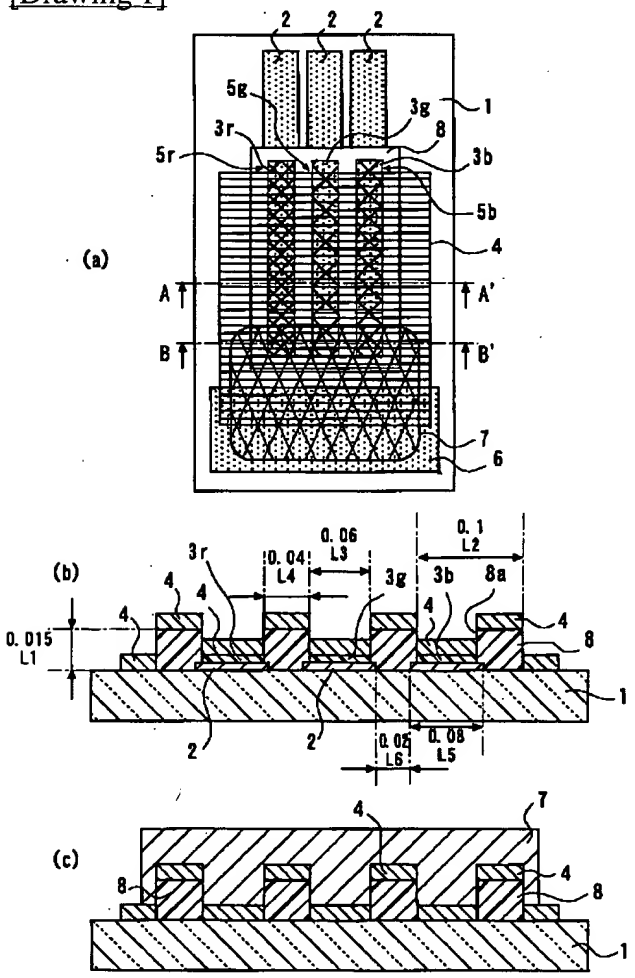
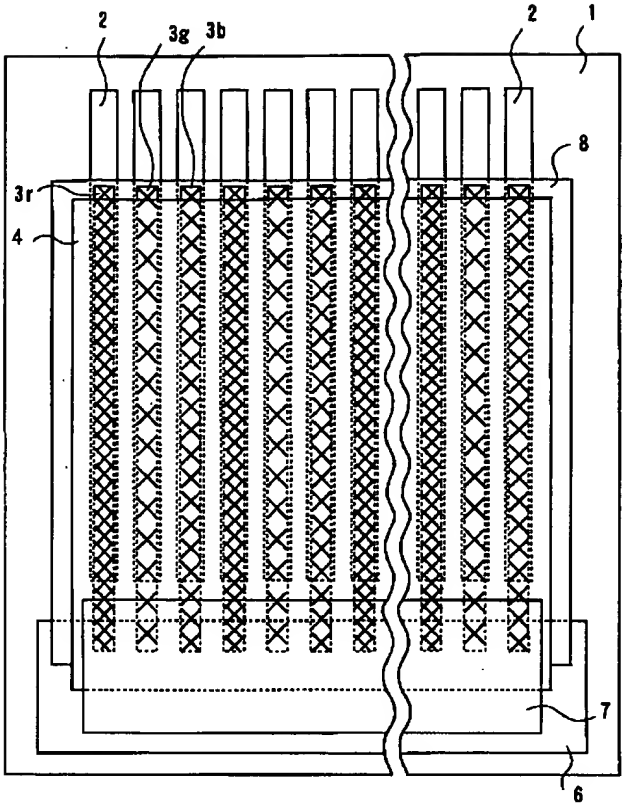
DRAWINGS

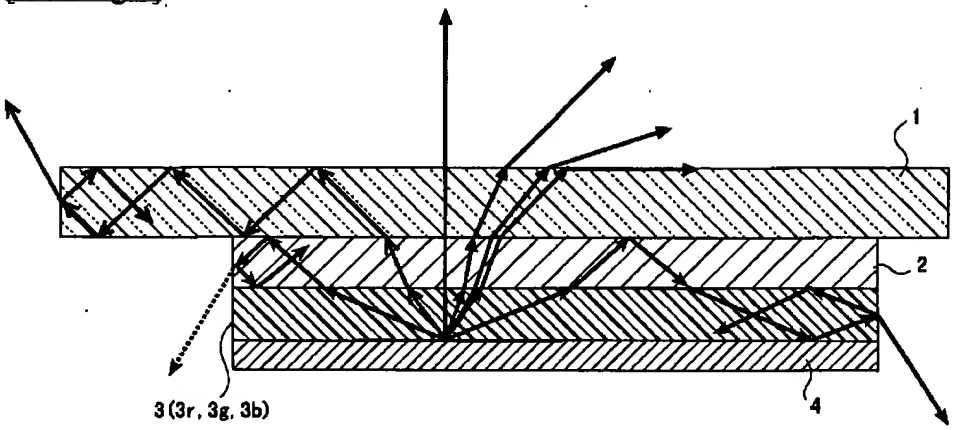
[Drawing 1]



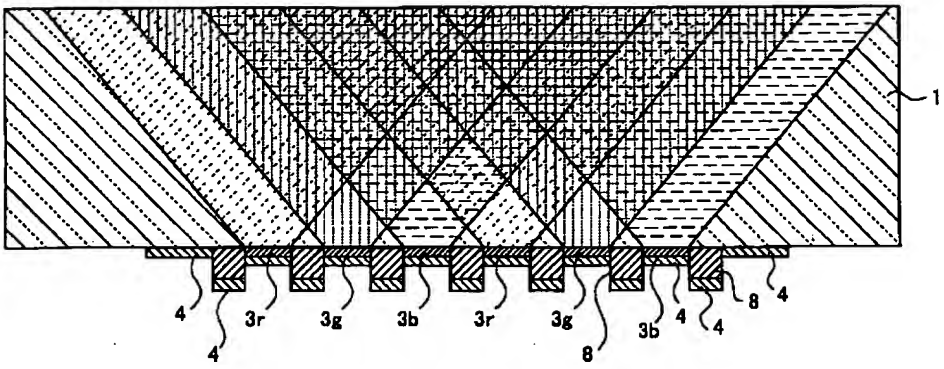
[Drawing 2]



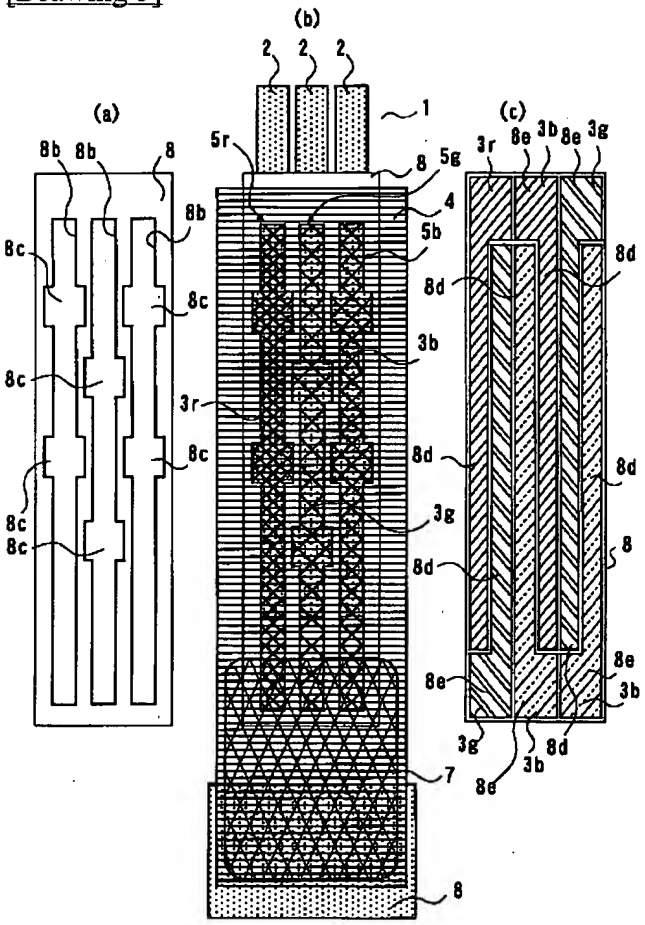
[Drawing 3]



[Drawing 4]



[Drawing 5]



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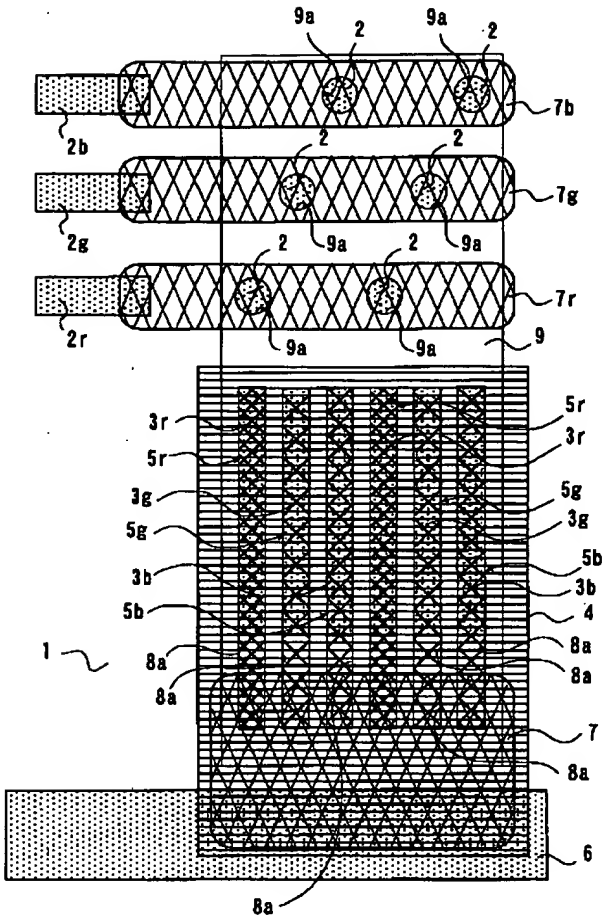
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9
5r
3r
3r
5r
5g
3g
5g
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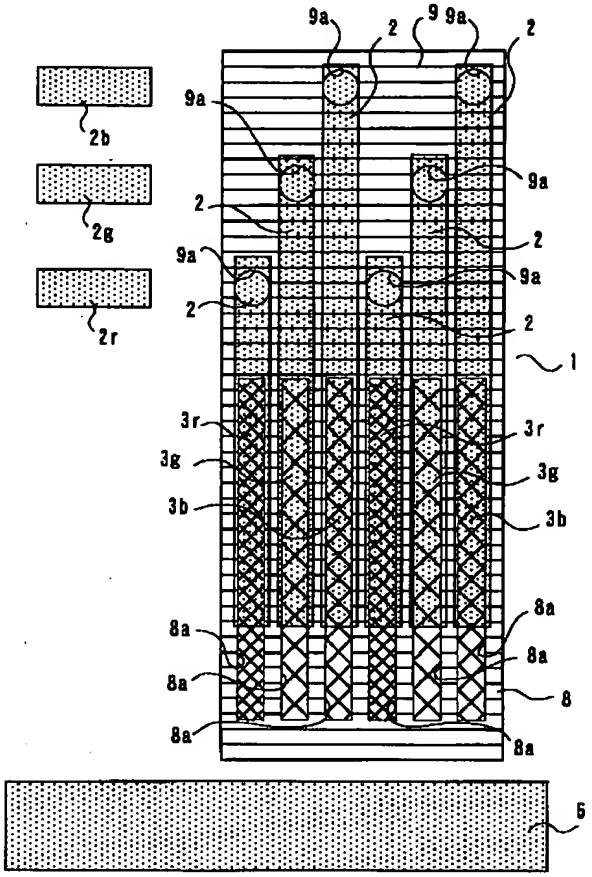
8a

[Drawing 7]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9a
2
9a
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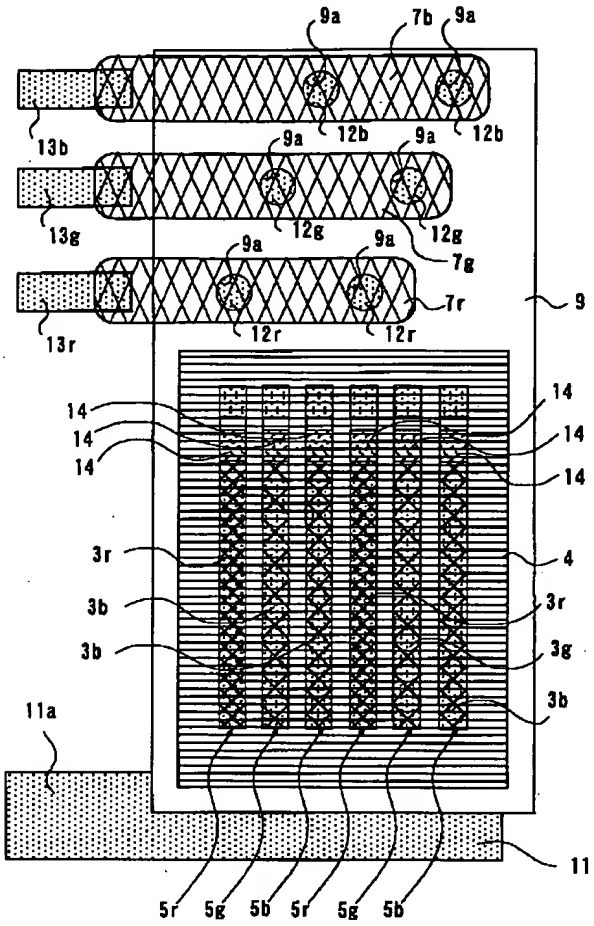
3r
3g
3b
3r
3g
3b
8a
8a
8a
8a
8a
8
6

[Drawing 8]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12r
13r
14
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14
14
14
14
3r
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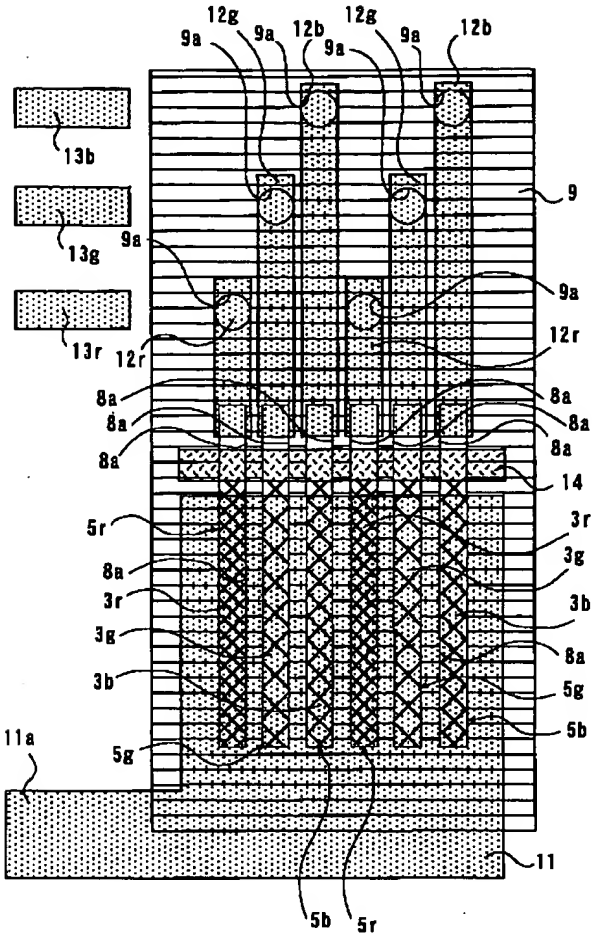
5r
5g
5b

[Drawing 9]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9
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8a
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14
5r
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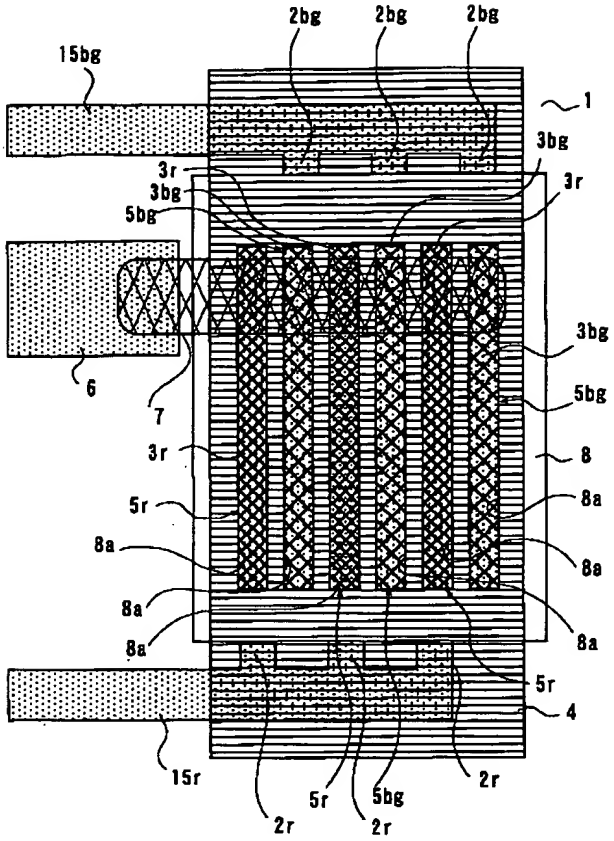
5b
5r

[Drawing 10]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2bg
2bg
15bg
1
3bg
3r
3bg
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3r
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3r
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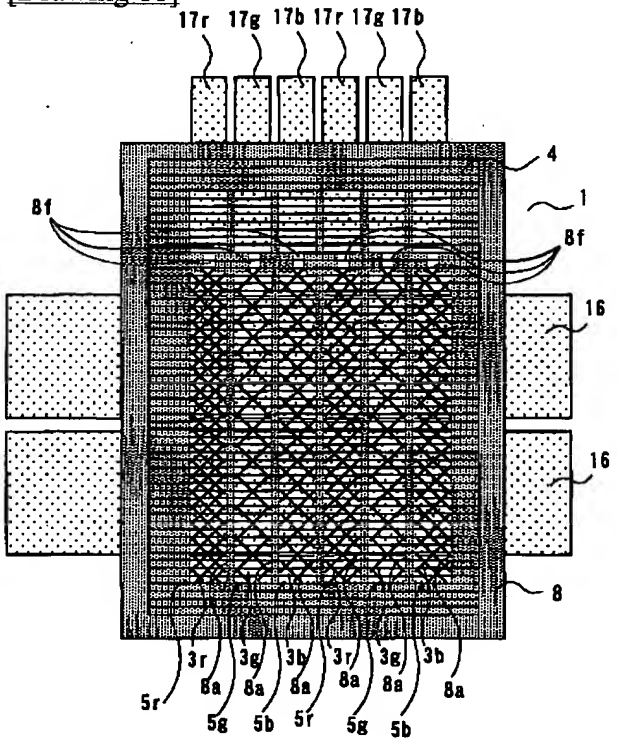
15r
2r
5r
5bg
2r
2r

[Drawing 11]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17b
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5g
5b
5r
5g
5b

[Translation done.]